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[*Note by* COLONEL SIR WILMOT HERRINGHAM.

DURING the whole time that the army has been in Flanders cases of short fever have continually occurred.

In a comparatively small number there has been a little bronchitis, or some diarrhoea, or tenderness of the muscles or nerves in limited situations. These have been called bronchitis, or influenza, enteritis, colitis, myalgia, and neuritis. But, as a rule, the symptoms have not included more than the general aches and pains which are the common denominator of all fevers. The patients have been very slightly ill, and except in a small number of cases have quickly returned to duty.

It has been very difficult to know what to call these cases. They have been sent in as influenza, myalgia, neuritis, pyrexia of unknown origin, and even as rheumatic fever. Of genuine rheumatic fever I have seen only five instances. Its absence has been one of the most striking things in the campaign, and effectually disposes of any connexion between this fever and wet or cold.

These undetermined fevers have from the first been the hunting ground of the bacteriologists, who with their laboratories are disposed in a line along the front, together with a few in special places further back. The bases have, of course, their own bacteriologists, and are not now under consideration.

The diagnosis of the enteric group of fevers is of such consequence to an army that the first task of the bacteriologist is always to exclude them. In consequence these cases of pyrexia have throughout been examined from that point of view. As they were usually seen quite early in the disease cultivation of the blood has been practised regularly, but cultivation of the excreta and agglutination tests have also been carried out in many hundreds of cases. In any case where either abdominal symptoms, or a dry tongue, or an enlarged spleen, or suspicious spots, gave clinical grounds for suspecting an enteric fever, the patient was sent down as "suspected typhoid" even if the bacteriological evidence was absent. But after all this had been done we were left with a large mass of cases in which neither the clinical nor the bacteriological evidence afforded any ground for this diagnosis.

In the early part of the summer Major J. H. P. Graham called my attention to a type of fever characterized by two bouts of pyrexia separated by a normal interval. He afterwards published two cases of the kind.[1] About the same time Captain Wells reported several similar cases. Colonel Sir William Leishman came round with me to see these cases. Their resemblance to sandfly fever and also to dengue struck those who had had experience in these fevers, but there were several points which effectually disproved identity. Other officers were good enough to look out for similar cases. I should like especially to thank Captain Stirling and Captain Bolus for their help. In the *Lancet* of November 20th, 1915, appeared a paper by Captain G. H. Hunt and Major A. C. Rankin, describing 30 cases and mentioning for the first time the name "trench fever," which by this time has come into common use. From these papers and from the paper now published I think we can say that from the mass of cases of obscure fevers one type has been isolated in which the clinical symptoms, the course, and to a certain extent the pathology, have been established. We are, however, still ignorant both of the nature of the infection and of the way in which it is introduced into the human system. It is still occurring, and this renders the agency of a flying insect improbable, though I was shown *A. maculipennis* only two days ago (January 29th).

The present paper needs no praise of mine, but I may say that I have followed the work throughout with the deepest interest.]

The cases of the type to be described first began to be recognized in this laboratory area about the beginning of July, 1915, although, on considering the matter later, it was certain that a small number of men seen during the previous month had suffered from the same disease.

It will be of interest to give an account of how our attention was drawn to the condition in the first place. In the first few days of July a number of men, about twenty in all, were sent in to an isolation hospital labelled "suspected enteric." These men all belonged to a division which had recently arrived in the area, and all had headache and varying degrees of pyrexia, in addition to other symptoms to which less attention was paid at the time. Since it was known that during the previous two months cases of paratyphoid B had occurred both in the civilian population and in the division then in occupation of the area, it was at first thought that these new cases might be of the same nature. Blood cultures were made in bile salt broth in the usual way, and thereafter the cases were immediately transferred to a stationary hospital further from the front. These blood cultures proved one and all sterile. The men reached the stationary hospital within a week of the onset of the febrile symptoms, but, on admission there, their temperatures were either found normal or fell to normal within a day or two, leaving the patients apparently quite well. As the cases did not resemble clinically any of the enteric group, an inquiry was at once addressed to this laboratory to find out the results of the blood examinations. The bacteriological and clinical findings seemed to exclude the enteric group, although the possibility of previous inoculation modifying the course of genuine enteric had still to be considered at the time.

Cases of the same kind occurred immediately afterwards, and on these being watched it was found that the fever ceased after five to eight days. These men were examined carefully, and other symptoms recognized, which will be described in full later on. None of these early cases, however, remained under observation for long after the temperature fell to normal, so that their subsequent history is unknown. The point of this remark will be seen when the course of cases watched over a long period is considered.

As has been already indicated, all the early cases remained under suspicion of belonging in some sort of way to the enteric group. As more and more cases were observed, however, each with a similar and constant group of symptoms, the disease soon became recognizable as a definite clinical entity, and early became known to officers and men under the name "trench fever."

Since attention was attracted to the condition, great numbers of cases have come under our observation. During the months of July, August, and September, in fact, it was impossible to visit three or four field ambulances on any day without seeing at least half a dozen fresh cases.

During August and September arrangements were made, especially at one casualty clearing station, to keep a series of cases under constant observation for some weeks, and it is as a result of this that we have been able to carry out most of the clinical, pathological, and experimental work detailed below.

DISTRIBUTION OF THE DISEASE.

The cases have been met with, curiously enough, only among two classes of men—namely, those direct from the trenches, or at least from near the trench zone (artillerymen, etc.), and men of the Royal Army Medical Corps. On looking into our records no real exception can be found to the above generalization. Thus in our experience only those who have actually lived in or near the trenches and those who by reason of their work are constantly in contact with sick and wounded men from the firing line, have suffered from this disease. This seems important in searching for the means of transmission of the malady, and shows, at any rate, that the name "trench fever" is not without some justification.

No case has been met with in units such as ammunition columns, ordnance, head quarter troops, etc., which, although in the army area, are situated at some distance

from the lines. Of the Royal Army Medical Corps units, the personnel of both field ambulances and casualty clearing stations have suffered. No stationary or general hospitals being in the zone of the laboratory, we are unable to speak of them.

Age and service, foreign or otherwise, have had no influence, both old soldiers and newly joined men being equally involved. Officers and men too have apparently been affected in the same proportion.

It is important to observe also that in a casualty clearing station, where a room was specially set apart for the observation of such cases, four of the orderlies developed typical attacks of the disease. Other men affected in the same unit included the attendant of the incinerator, the man in charge of the Thresh disinfector, an officer's cook, as well as other men on ordinary duty.

The question of the occurrence during the past summer of a similar disease among the civilian population has been gone into, and although it is difficult to get sufficient accurate information, it seems highly probable that such cases have existed.

In the course of inquiry some interesting particulars of the types of fevers found in the Flanders area have emerged, but no help has been gained with regard to a past history of this disease.

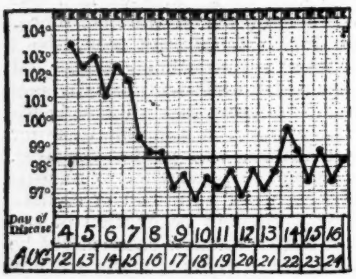


CHART 1.

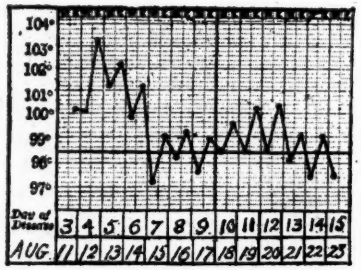


CHART 2.

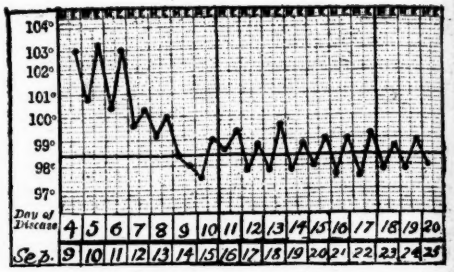


CHART 3.

CHART 1: This man was admitted on the fourth day of illness; a typical single relapse is shown. CHART 2 shows in part the tendency to remission often seen about the third day; the relapse is more gradual and prolonged than in the first chart.

ness that they fell down in their trench. The headache, although always severe, is not constant in its seat of maximum intensity in different cases. A very common feature, however, is pain behind the eyes, especially when they are moved. Pain appears early in other places besides the head, the most common sites being the lower limbs and small of the back. In the former the pain may be confined to the "shins," but is often present in the thighs and behind the knees. It is difficult to say whether the pain is periosteal, or muscular, or both, but all the men state that it feels deep-seated in the limb. It often gives rise to an intense feeling of restlessness, so that the patient is unable to keep his legs still for any length of time.

No diarrhoea is ever present, but, on the contrary, a tendency to constipation is frequently observed.

The fever varies in intensity, ranging up to 103° F. or 104° F. in the first day or two. The face is flushed, the eyes generally clear and bright, and free perspiration occurs. The tongue is furred, and there is great loss of appetite. No signs of catarrh are ever present in the chest. The pulse rate is only slightly raised, a common figure being about 100. Often about the third day there is a sudden drop of the temperature to normal or even subnormal, without abatement of the symptoms. Thereafter, however, the temperature rises at once, to fall again, in our experience, about the sixth to the eighth day. In

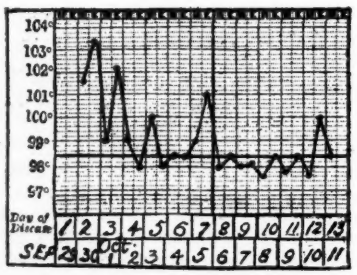


CHART 4. This chart shows a more irregular type of fever. The patient was admitted on the second day of illness. The symptoms continued until the eighth day, after which a relapse occurred on the twelfth day.

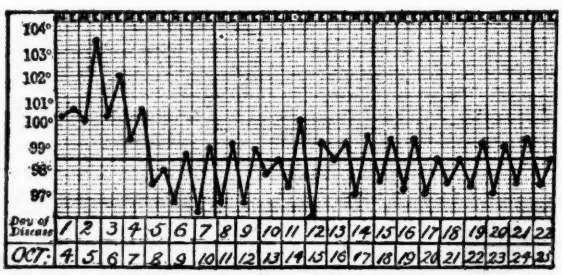


CHART 5.—This man had been slightly wounded in the shoulder, and came to the convalescent hospital with a normal temperature The chart therefore begins on the first day of the attack. He had not been, when the illness commenced, in the ward where the other febrile cases were kept.

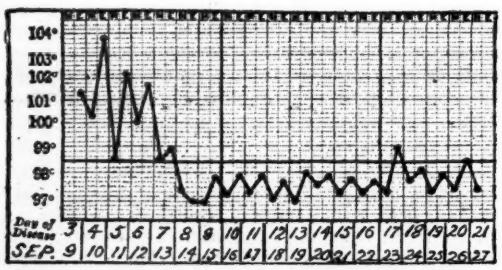
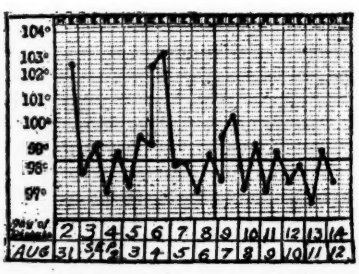
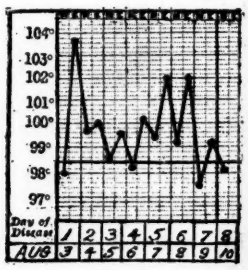


CHART 6.—It will be noticed that only a slight relapse occurred nine days after the temperature fell to normal on the eighth day.





CHARTS 7 and 8 are given as well-marked examples of the remission which may occur about the third and fourth days. Such a remission is well shown in two of the experimental cases.

TYPES OF FEVER.

Two types of fever will be described, and at first it was quite impossible to be sure whether both were varieties of the same disease or were two distinct entities. When the experimental work comes to be dealt with, however, evidence will be given which to our mind makes it practically certain that one disease alone is under consideration. Both types have identical symptoms, and the initial history of both is essentially the same. The cases only

other cases, however, there is no such intermission, the temperature remaining continuously elevated for a week. When the temperature drops at the end of this period there is an immediate relief from all the symptoms, which is very striking. The rate of convalescence varies, and in many of these cases, but not in all, is complicated by a single relapse. This is in contrast to the second type of case to be described, where the initial period of fever is not so long and relapses frequent. It seems as if, granting that the same disease is under discussion, a longer initial attack may give rise to only a single relapse, whereas a shorter period of fever at the beginning may be followed by several relapses. Enough evidence has not yet been accumulated to render this supposition certain, but we wish to suggest as additional evidence in favour of the disease being a single one that the duration of the malady with its relapses may be inversely proportional to the severity and duration of the initial attack.

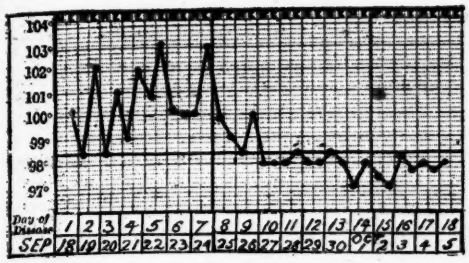


CHART 9.

The relapse is met with as a rule within four days of the temperature falling to normal. The fever is never very high, reaching perhaps 100° F. to 101° F. The duration is one or even two days, and during this period all the previous symptoms return, although with lessened severity.

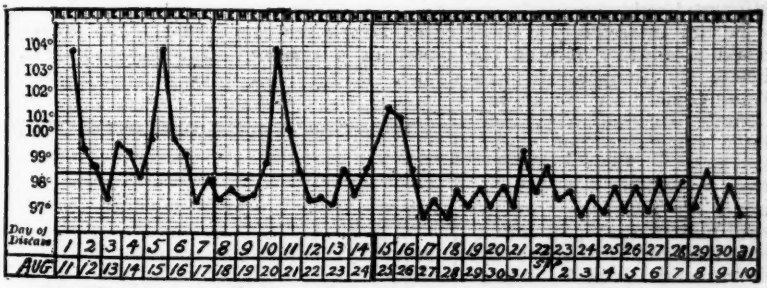


CHART 11.—This case was observed from the outset, the man affected being one of the personnel of a field ambulance. Note the short duration of the first febrile period, the temperature being subnormal on the morning of the third day.

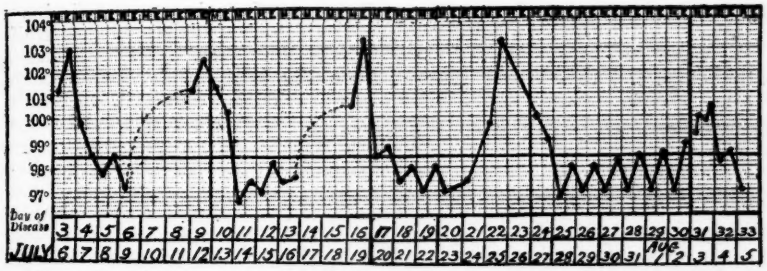


CHART 10.—The above chart, from the case of an infantry officer, was the first case of the kind met with. Hence a great deal of attention was paid to it, and until subsequent similar charts became available, the nature of the illness remained a puzzle. Many examinations of the blood were made during and just before the attacks to see if any parasite could be found, but all proved negative. In the intervals between the pyrexial periods the patient was so well that he was out of doors all day; hence the interruptions in the chart shown by the dotted lines.

A series of nine charts, all from cases of the type described, are reproduced. It seems superfluous to give a clinical account of each example, so only points of special interest will be alluded to in the text.

CLASS B.

The chief distinction between this type and the first is the number and periodicity of the relapses, so that the disease takes on the characters of a true relapsing fever. This variety is less common than the first, only about twenty characteristic cases having been observed. Apparently, however, more have been seen so far in this than in any other zone of the British front.

This type of case begins with symptoms indistinguishable from the shorter illness already described. The headache, dizziness, pain in the legs, and tendency to constipation, all are there, and there is high fever. In short, it is at this stage impossible to foretell into which class the case will fall. A point of importance, however, is that the initial fever does not last so long as in Class A. The duration of the initial rise of temperature is naturally the most difficult part of the disease about which to obtain accurate information, most of the cases having already passed through a field ambulance before coming under our observation. In cases seen from the very beginning, however (for example, two of the personnel of a field ambulance), the duration of the initial attack was about three days, and this bears out the story of other men who only came under observation later.

After the primary rise and fall of temperature the patient feels perfectly well, so well, indeed, that in several instances he has returned to his ordinary duties. Then, suddenly, after a varying number of days, the man is again aware that he is unwell. Headache is, as a rule, again the initial symptom, and is often accompanied by a sensation of cold, although no actual rigor has ever been observed. Pain in the legs and small of the back return with great severity, and on taking the temperature it is found to be high, often reaching 103.8° F. As a rule the onset of the attack is some time in the afternoon, and the height of the fever is reached the same evening. This relapse differs from that described under Class A in the following particulars: (1) It is the first of a series of similar attacks; (2) it is sharper, the temperature is higher, and the symptoms are just as severe as in the initial attack.

The duration is short, the temperature rising quickly one day, to fall to normal, or almost normal, within the next thirty-six hours. Occasionally, however, the rise is not so rapid nor the fall so sudden, so that the relapse from start to finish covers a period of about three days (see Chart 13). The interval between the end of the initial attack and the onset of the first relapse is most frequently about four days, and once the relapse is over the patient returns again to a period of well-being. With regard to subsequent relapses the periodicity varies, as is shown in the charts, the intervals never being exactly regular even in individual cases.

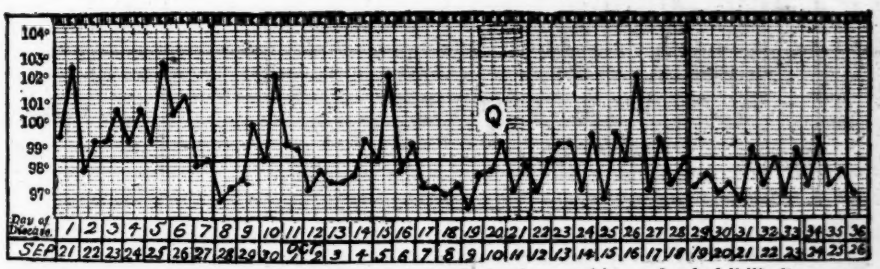


CHART 12.—This case was admitted to hospital suffering from scabies, and only fell ill after some days. The chart thus dates from the first day of the disease. On the twentieth day, when the third relapse was calculated to be due, the patient was given 20 grains of quinine. The effect was interesting, as, although the symptoms developed in marked degree, the temperature did not rise above 99° F. Q = Quinine sulph 20 grains.

The symptoms during the second and third relapses are, as has been already indicated for the first, of considerable severity, constant in character, and just as severe as in the

first days of the disease. In subsequent relapses, however, the symptoms are not so severe, nor does the temperature rise so high. It is the headache, however, which is chiefly mitigated, the pain in the shins remaining very troublesome.

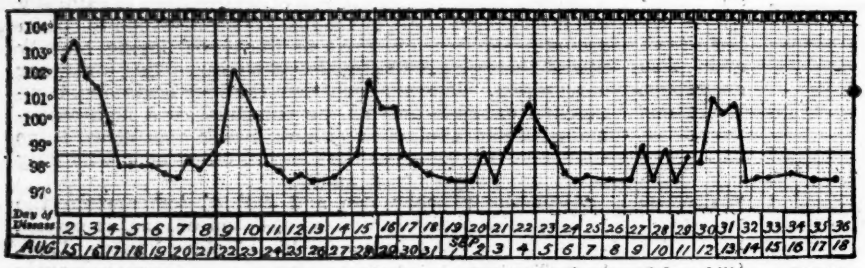


CHART 13.—This case, also an infantry officer, was admitted on the second day of illness. It will be observed that with each successive attack the temperature reached is, in every instance except the last, not quite so high as on the preceding occasion. This feature is also well shown in other charts, notably, 11, 15, 16, and 17. This would thus seem to indicate progressive diminution of the infective agent or the gradual establishment of immunity.

It was interesting in these cases how often the men could accurately foretell the onset of a relapse, even before the temperature was raised. They "felt something coming on" in an indefinite sort of way, and later complained of slight headache. Thus sufficient time was often given to warn us at the laboratory that a case was relapsing, in order that various blood examinations could be made during the pyrexia.

DIFFERENTIAL DIAGNOSIS.

The chief diseases coming under consideration in this respect appear to be:

(1) *The Enteric Group.*—This was excluded by (*a*) the numerous negative blood cultures; (*b*) the negative examinations of stools and urine; (*c*) the negative Widal reactions in the case of paratyphoid A and B; and (*d*) the periodicity of the relapses.

(2) *Malta Fever.*—This was excluded by the negative agglutination tests.

(3) *Dengue.*—The absence of any rash seems to rule this out.

(4) *Influenza.*—The differentiation from this disease is very important, because probably the majority of the cases came into hospital with a diagnosis of influenza. It is quite certain that a great many will go down permanently into army records under that name. Influenza is excluded by the following points: (*a*) Absence of all catarrhal symptoms in the chest; (*b*) there is not the same prostration, cases often being found walking about with high temperatures; (*c*) there are the periodic short relapses—the most distinctive feature of all.

(5) *Malaria* and (6) *Relapsing Fever.*—These were both excluded by the absence of any parasite in the blood films or of any splenic enlargement.

PATHOLOGY OF THE DISEASE.

Work in connexion with the types of fever described has been carried on from various standpoints, and divides itself into bacteriological, pathological, and experimental. It may be said at once that the first two lines of investigation have yielded little information, but a brief account even of purely negative results must be given to complete as far as possible our knowledge of the disease. From the experimental work, on the other hand, much important information has been gained.

Blood cultures have been made in a variety of ways. At first many of the cultures were made in the ordinary bile salt peptone broth used for the cultivation of the typhoid group of organisms. This was done because at first, as has been indicated, nearly all the cases were suspected of being enteric fever owing to the pyrexia. It is sufficient to say here that at least 100 such blood cultures have been examined, all with negative result. All these cultures were made in the first few days of the disease, and this set of observations alone seems amply sufficient to exclude the idea first mooted that the disease might be enteric in reality, much modified by inoculation. The Widal reaction, so far as *B. typhosus* was concerned, gave no assistance, owing to the high rate of inoculation. At one period a search was made for a case of the disease in an uninoculated man, but no such case on which to make agglutination tests could be found. Agglutination tests with *B. paratyphosus* A and B, and with *Micrococcus melitensis* and

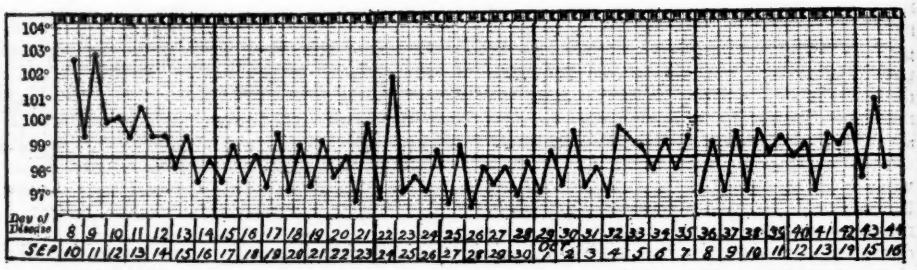


CHART 14.—This case is included as it shows a rather irregular type of chart. The man had taken ill a week prior to admission, with characteristic symptoms, and was presumably, when first seen by us, in his second period of fever.

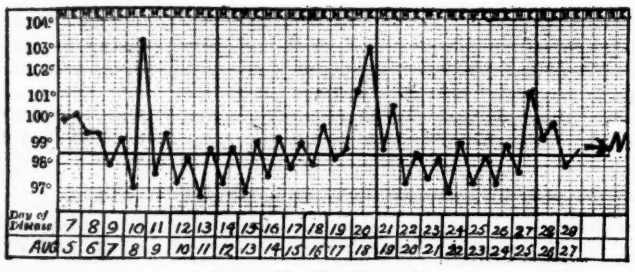


CHART 15.—N = Normal.

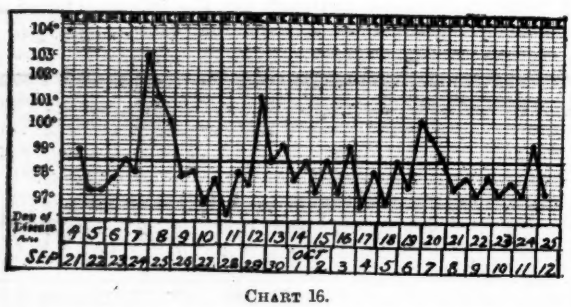


CHART 16.

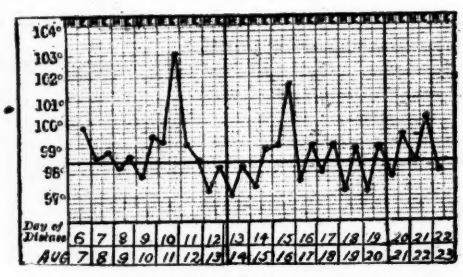


CHART 17.

CHARTS 15, 16, and 17.—These three charts all show the well-marked relapsing character of the fever. In each case the first attack had occurred before the case was admitted, the men only coming under observation on the seventh, fourth, and sixth days after the onset of the illness.

paramelitensis, were made towards the end of some cases both of long and short type, but being always found negative were not persisted with.

A considerable number of blood cultures were also made using ordinary bouillon as the culture medium, again with negative results even when the culture was left for a week or longer at 37° C. More recently anaërobic shake cultures of the blood in a large volume of glucose agar have been tried, without success.

The faeces and urine have been searched culturally in a number of cases, both during and at the end of the pyrexia, but no abnormal organisms were found.

Blood films have been thoroughly searched, both in the short and especially in the relapsing cases, for the presence of any parasite, whether intracellular or extracellular. In a few instances the blood has been examined daily during the fever and between the febrile attacks, but nothing resembling a parasite has so far been discovered. Various stains have been employed, but especially Leishman, Jenner, and Giemsa, films being even left in the last stain for a period of several days. Fresh films of blood from some typical cases have been searched under dark-ground illumination, but no unusual appearance was detected.

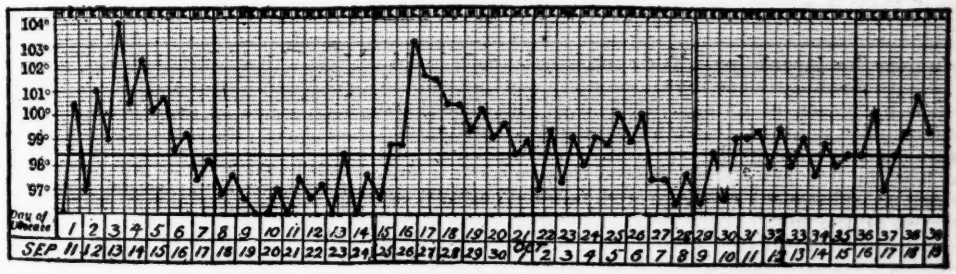


CHART 18.

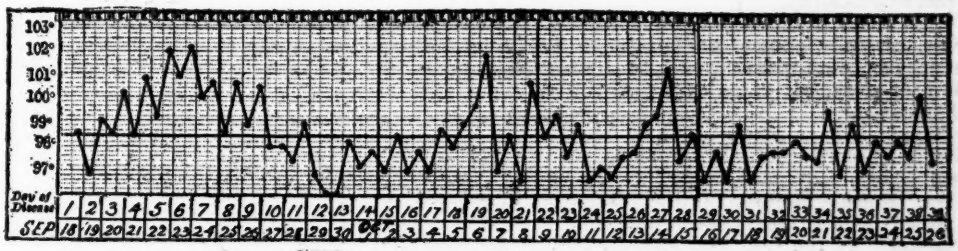


CHART 19.

CHARTS 18 and 19.—The above two charts show types of fever different in their course from any of the others described. The clinical symptoms were, however, typical enough.

The morphological changes seen in films are of some interest. As regards the red cells, only one pathological feature occurred with any degree of frequency. This was the presence of polychromatophil cells above the normal in size; and also, especially in the relapsing cases, of well-marked punctate basophilia. In several cases this latter change was so well marked that very careful examinations were made to make sure the appearance was not really due to an intracellular parasite. An explanation of these morphological changes was found when blood counts came to be made, as all the men examined showed a definite defect in the percentage of haemoglobin, the average colour index of a series of cases being 0.8.

Although the defect in the percentage of haemoglobin was constant, there was no loss in the number of red corpuscles, as will be seen from the table.

The leucocytes showed no morphological changes, and differential counts only indicated a slight relative increase in lymphocytes (large and small), with a rather low figure of hyaline cells. The details are given in full in the table.

EXPERIMENTAL WORK.

The experimental work was undertaken to satisfy any or all of the following questions:

1. Is the disease transmissible by the blood (*a*) to animals, (*b*) to man? If so,

2. What part of the blood is infective—the fluid or the cellular elements?

3. Can the disease be transmitted by any or all of the following: (*a*) Whole blood, (*b*) plasma, (*c*) serum, (*d*) corpuscles?

4. If the virus is transmissible, is it a "filter passer" or not?

5. If ultramicroscopic, is the virus in the fluid part or only in the cellular elements of the blood?

6. If a virus be proved, what is the method of transmission in nature?

Following out this scheme, experiments were first made by injecting the separated serum from marked cases into animals, rats and rabbits being used. Later whole blood (citrated) was tried, but none of the animal experiments bore any fruit.

Thereafter, with the approval of the authorities, it was resolved to extend the experiments to men who would

TABLE.—*Blood Counts.*

Case.	Date.	Days Ill.	Haemoglobin Percentage.	Red Corpuscles.	Leucocytes.	Colour Index.	Polymorphs.	Large Lymphocytes.	Small Lymphocytes.	Eosinophiles.	Hyalines.	Mast Cells.
	1915.											
J.	Sept. 3	8	82*	4,470,000	10,000	0.93	58.5	8.0	26 5	3.0	4.0	0
M.	Sept. 7	5	84	5,210,000	5,200	0.8	68	5.5	17.5	2.5	6.5	0
C.	Sept. 13	6	83	5,380,000	8,800	0.78	73 5	10.0	10.5	2.0	3.5	0.5
11	—	—	—	—	—	—	67.3	22,9	4.2	0.7	4.9	0
13	Sept. 6	24	83	5,390,000	7,000	0.78	64 5	7.5	16.0	3 5	8.5	0
21	Sept. 11	2	90	5,390,000	18,200	0.84	—	—	—	—	—	—
21	Sept. 18	9	83	5,560,000	6,800	0 75	71.5	6.0	17 5	2.5	2.5	0
21	Sept 19	10	83	5,230,000	9,800	0.79	69.6	5.6	18.4	2.0	3.6	0.8
21	Sept. 20	11	82	5,720,000	13,800	0 72	74.4	7.2	14.0	1.2	2.8	0.4
21	Sept. 21	12	86	5,160,000	12,800	0.84	68.6	6.6	17.3	2.6	4.6	0.3
22	Oct. 9	4	84	5,200,000	7,800	0.8	53	12.0	28.0	3.0	3.5	0.5
24	Oct. 4	3	85	5,460,000	6,400	0.81	64	12.0	15 5	3.0	5.0	0.5
24	Oct. 5	4	—	—	—	—	63	8.5	20.0	4.0	4.0	0.5

* A Gowers's haemoglobinometer was used.

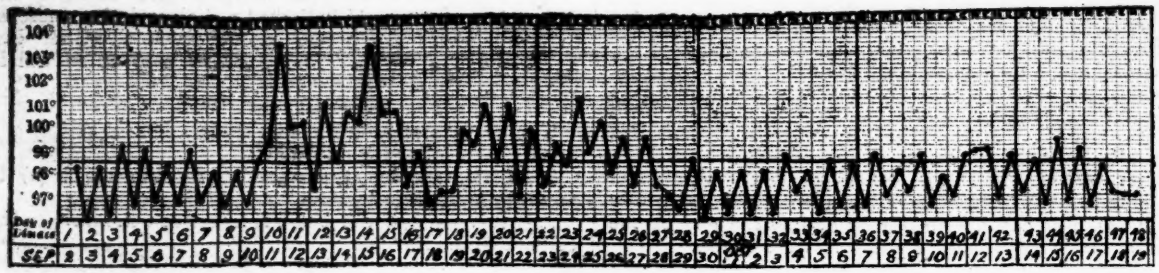


CHART 21.—Private W.

volunteer for inoculation. The experiments made in this way have been carried out in a casualty clearing station which by reason of its special situation has, during the past summer, acted as a convalescent station. Until special arrangements were made, however, no case could by rule be kept in this hospital for longer than a week, a fact which, as subsequent events proved, militated against the success of the first experiments. The men from whom volunteers were selected were almost all cases of minor injuries (sprained ankles, etc.), that is, men who although unfit to return to the trenches for some weeks were otherwise healthy.

The cases from which blood was taken for transmission were carefully chosen, only those in which no sign or history of past disease could be found being used. A number of typical cases were passed over at the time for this reason.

The experiments were begun on August 11th, 1915, when 5 c.cm. of blood were taken from each of two typical cases, and transferred immediately into the veins of two other men. Nothing occurred during the week these men remained under observation, and the men were then evacuated to the base and lost sight of. Positive results began to be obtained when permission was received to keep the cases, and the men inoculated from them, for a longer time under observation.

An account will now be given in detail of the first case in which the transmission was accomplished:

Transmission by Whole Blood.

On September 2nd an R.A.M.C. orderly, Private S., who had been on duty in the ward in which the "trench fever" cases were being kept, was in the middle of a brisk and typical attack of the disease. His temperature chart is given below (Chart 20).

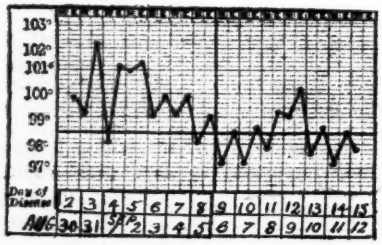


CHART 20.—Private S.

At a time when his temperature was 101.4° F., 5 c.cm. of his blood were taken into a syringe previously washed out with citrate solution, and transferred immediately into the veins of Private W. Private W. remained well until September 11th, nine days after the inoculation. On the evenings of the third and fourth days his temperature reached 99° F., but he felt perfectly well at the time.

On the morning of September 11th he awoke at daybreak, feeling unwell. He had a slight headache, and his temperature at 6.45 a.m. was 99.2° F. He got up, but could not remain out of bed for longer than an hour, as the headache became more and more severe, and he felt cold and "shivery." He returned to bed at 9 a.m. and soon after was attacked by pain, chiefly in the thighs and small of the back. Unlike other cases, he had no pain below the knees. By evening he felt very ill, and at 6.30 p.m. his temperature was 103.8° F. and pulse 88. Next morning he was rather better, the pain being easier, although the headache remained severe. His temperature, too, had fallen, being 99.8° F. in the morning and 100° F. at night. On the third morning his temperature was normal, but the headache remained, and the pain did not entirely pass off. The same evening, however, he was perspiring profusely, and felt just as ill as on the first day of the attack. His temperature on this occasion was 100.8° F. The following morning there was again a slight remission, but only for a short time, and during the next few days he was very ill, until the temperature reached normal once more on the seventh day after the onset (Chart 21).

Immediately the temperature became normal he felt comparatively well, and was able to sit up for a short time. His headache was completely relieved, but he still had slight pain in the thighs. Thereafter two definite relapses occurred, the one reaching its acme on September 19th and the other on September 23rd. During these relapses headache and pain in the thighs and back returned with considerable severity, without being, however, quite so severe as at the beginning. It will be observed from the chart that one relapse was at its height about four days after the temperature fell to normal on the seventh day, and that the other followed after a precisely similar interval.

Various symptoms, etc., of lesser bearing have been purposely omitted in the account of this case, so as to bring those of importance into prominence. It is sufficient merely to mention that anorexia and a definite tendency to constipation—both symptoms common to many febrile diseases—were present to a considerable degree.

The subsequent course of the case was towards complete recovery, but it is a noteworthy fact that whenever the temperature rose in the least degree above normal (as, for example, on October 15th, thirty-five days after the initial fever), the pain in the thighs returned with severity. This has been observed in other cases, the patients being able to tell that their temperature was a little high by the return of the pain.

Fairly numerous blood examinations, made on Private W. during his illness, are shown in the table already given.

It was resolved to try to carry on Private S.'s infection through Private W. to a third generation, but no opportunity for doing so occurred until September 19th, nine days after the beginning of Private W.'s attack.

Transmission by Whole Blood.

On this day 10 c.cm. of blood were taken from Private W. into a syringe previously washed out with citrate solution, and injected intravenously at once into Private D.

This man kept well until September 24th, five days after the inoculation, when a typical attack of the disease was again reproduced (Chart 22).

He took ill in the evening, feeling "shivery" and out of sorts. His temperature was found to be 99.8° F., and during the night intense headache and pain in the thighs developed. Next morning when seen he was very ill, complaining especially of pain behind the knee-joints, and at noon his temperature stood at 102.4° F. The following day his temperature was normal, and all the symptoms practically abated, so that he wished to get up. Thereafter, although a slight rise of temperature occurred on three successive evenings, he kept perfectly well until October 4th. During this interval of ten days he was able to go out of doors every day, and felt quite in his usual health. A relapse then occurred, all the original symptoms returning with even more severity than in the first attack. His temperature reached 103° F. on the 5th, and then fell, all symptoms and fever having passed off by October 7th. A period of well-being again followed, lasting until October 15th, when a further relapse developed with the usual set of symptoms. These were not severe, the temperature only rising to 100° F., and next day the patient was better again.

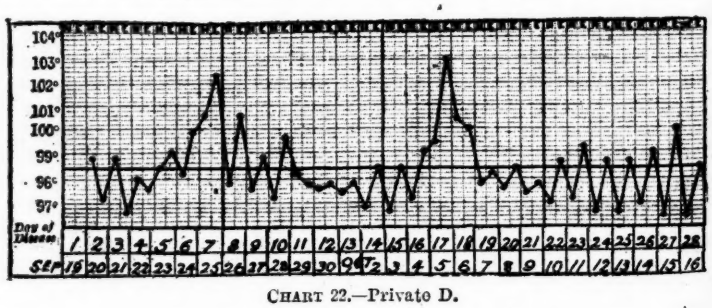


CHART 22.—Private D.

It is important to observe that the highest temperatures recorded in the three attacks occurred on the seventh, seventeenth, and twenty-seventh days after the inoculation—that is, the interval between the height of each illness was exactly ten days. The periodicity in this case has, we also consider, a further importance in helping to establish the unity of the "short" and "long" types of disease described in the earlier part of this paper. The first case, Private S., represents in our original description a fairly typical "short" type. The second, Private W., seems merging into the other or "long" type; and the third, Private D, if the case had occurred naturally, would have been put without hesitation into the latter group. The results of the experiments just described, taken along with the identity of the clinical symptoms in every case, seem to constitute very strong links in the chain of evidence supporting the view that all are simply varieties of one and the same disease.

The next experiment to be referred to had its origin also in an R.A.M.C. orderly, who had also been in contact with a number of cases.

Transmission by Whole Blood.

This man, Private C., took ill on September 15th, with the by this time well-recognized symptoms. His chart is appended, and shows a fairly typical curve (Chart 23).

On September 19th, when his temperature was 102.4° F., 10 c.cm. of blood were transferred immediately into the veins of Sapper M. This man kept well until October 2nd, thirteen

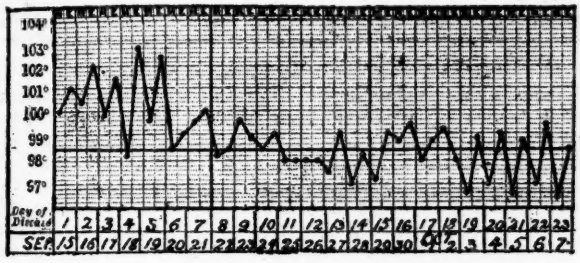


CHART 23.—Private C.

days after the inoculation, when he suddenly felt dizzy, cold, and shivery while going down the long hospital stairs. He had no headache until the evening, when his temperature had risen to 102.6° F. (see Chart 24). Pain in the legs had come on previously (at 4 p.m.), and was at first worst round the hips. During the night the pain became more localized to the back of the knees and to both ankles, and felt, so he said, deep down in the bones. The symptoms continued until October 7th without remission, when they passed off quickly. A relapse occurred on October 10th, four days after the end of the first pyrexial period, and a second on October 13th, after a similar interval of four days. On neither occasion were the symptoms severe, the temperatures only reaching 99.2° F. and 99.8° respectively.

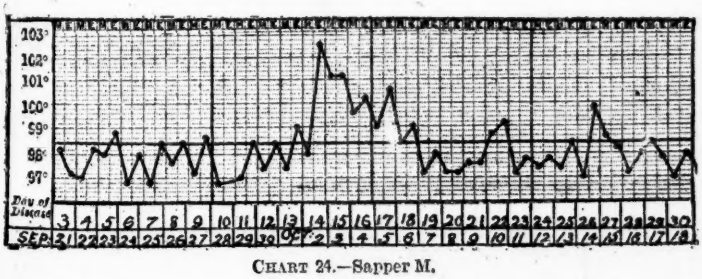


CHART 24.—Sapper M.

Having shown in these three men—Private W., Private D., and Sapper M.—that the disease in typical form could be transmitted from cases by immediate inoculation with "whole blood," it remained to continue work on the scheme outlined at the beginning of this section.

Filtered Serum.

Serum experiments had been begun early, as the blood from typical and suitable cases could be collected at different field ambulances, the serum separated in the laboratory, and thereafter injected into volunteers. The first experiment with the blood serum, made on August 20th, was a failure, but the two men were only under observation for about a week. The serum was in this experiment passed through a Doulton filter candle without dilution before being injected. On August 22nd the pooled serum from four typical cases was, after the addition of an equal bulk of saline, passed through a Doulton filter, and injected

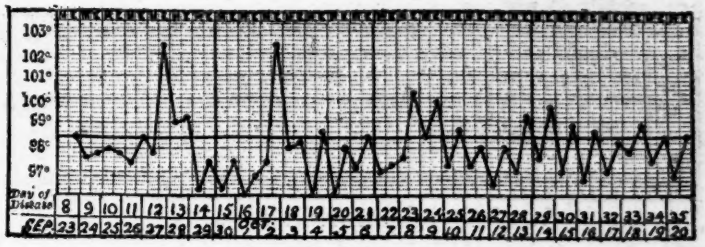


CHART 25.—Private B.

into two men. Nothing happened, although the men were kept for a fair time under observation. This attempt to prove whether the virus was a "filter passer," before the infectivity of the unfiltered serum was tried, seems to indicate rather a cart-before-the-horse procedure, but it was adopted at the time for the following reasons: It was thought from analogy, in the first place, that the virus might be somewhat of the same nature as those of yellow fever or sandfly fever, etc.; and also, the blood being at the time collected, often under difficult conditions, from field ambulances, the sterility of some of the samples might be in question. We felt safe, however, in injecting the serums after they had passed through the porcelain filter candle.

Two other men were again, on August 25th, inoculated with the pooled serum of three typical cases, the serum being previously filtered through a Doulton candle. A negative result was obtained. The same type of experiment was carried out on August 27th, the pooled serum of four typical cases being filtered as before. A negative result was again obtained.

It was then suggested to us by Sir William Leishman that our failure to get the virus through the filter was possibly due to the serum not being sufficiently diluted with saline, in none of the experiments so far described more than an equal volume of saline having been employed. In our subsequent filtration experiments, therefore, the serum was always diluted with ten volumes of saline.

These experiments now to be detailed were conducted under the best conditions in the casualty clearing station where so much of the work has been done, and were designed to satisfy several questions at once. They must, therefore, be described as separate experiences, leaving the conclusions to be drawn at the end.

On October 7th blood was withdrawn from Private B., on the day before his fifth attack of fever, and in the fourth week of his illness. 5 c.cm. of blood were taken into a syringe washed with citrate solution, and injected at once into Private D——m. The remainder was allowed to clot, the serum separated, and divided into two parts, each of 3 c.cm. One of these parts was diluted with ten volumes of saline and rapidly filtered through a Berkefeld "V" filter. Thereafter the 3 c.cm. unfiltered serum were injected into Private T., and the filtered and diluted serum (now 30 c.cm. of fluid) was transferred intravenously to Private M. These two injections were made about four hours after the blood was withdrawn.

The chart of Private B. (Chart 25), from whom the blood was withdrawn, is reproduced. When admitted he gave a history of two previous attacks of fever, and four relapses, shown on Chart 25, occurred in hospital.

Private D——m (Chart 26), into whose veins the "whole blood" was injected, began at once to run an irregular temperature, but without obvious symptoms until the evening of the eighth day. Then the usual symptoms of headache, pain in the back and legs, etc., appeared, and continued until the temperature fell to normal three days later. Thereafter three relapses occurred, each reaching its acme, as shown by the highest temperature recorded, five days after the previous one.

Private T. and Private M., who received respectively serum and serum after dilution and passage through a

filter, kept perfectly well for four weeks under observation, their temperature charts not showing any deviation from the normal.

In this experiment, therefore, only the "whole blood" was infective, no result being obtained with serum, filtered and unfiltered.

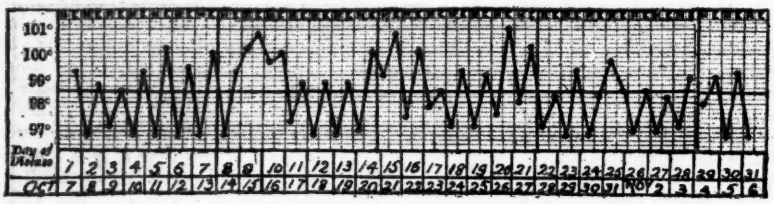


CHART 26.—Private D——m.

The next experiment had as its basis the case of Private D——m (Chart 26), just described, whose attack followed the injection of the blood of Private B. The blood was withdrawn on October 15th, when the temperature was 100.8° F., and the symptoms well marked. Private W——x was injected at once with 5 c.cm. of blood, taken into a syringe washed with citrate solution. The remainder of the blood was taken to the laboratory in two parts, one being citrated to prevent clotting and the other being allowed to coagulate. The citrated blood was centrifugalized at once, 8.5 c.cm. of plasma being thus obtained. The other part of the blood yielded after coagulation 10 c.cm. of serum. This was divided into two, 5 c.cm. being set aside, while the other portion was diluted with ten volumes of saline and filtered as before through a Berkefeld V candle. The total bulk of the diluted fluid was thus 50 c.cm. It must be pointed out here that when ready for injection, owing evidently to some fault in technique, both the plasma and the serum were considerably haemoglobin tinted, that is, some red corpuscles had been damaged and the haemoglobin liberated. The importance of drawing attention to this will be realized when the results of the experiment are noted.

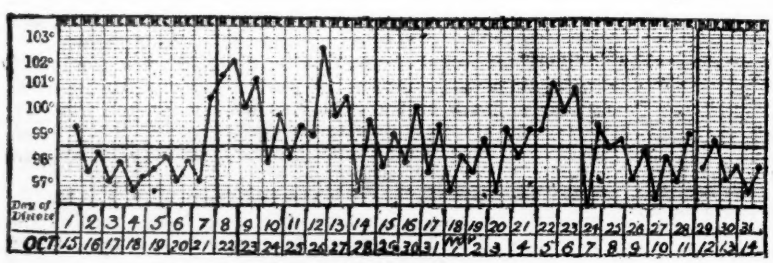


CHART 27.—Private W——x.

Private W——x (Chart 27), into whom the "whole blood" was transferred, developed, as is shown in the chart, an extremely typical attack, with the usual relapse and the customary symptoms. The incubation period was in his case seven days.

In the case of Private O. (Chart 28), into whom 8.5 c.cm. of plasma were injected, a quite characteristic positive result was obtained after a period of thirteen days, as is shown in the chart.

A positive inoculation also resulted on the ninth day after the introduction of 5 c.cm. of serum into the veins of Private N. (Chart 29), whose chart is also given.

Clinically, the illness caused by the introduction of the "whole blood" was much more severe than that brought about by inoculation with either serum or filtered serum, a fact well shown by comparing the three temperature charts.

The man, Private R., into whom the filtered serum was introduced, remained absolutely without symptoms, even when watched carefully for over a month, and his temperature taken night and morning.

As it was felt that this last experiment made with plasma and serum was not perfect, owing to the haemolysis which occurred in preparing the specimens for injection, it was resolved to repeat the test.

On October 21st Private P., an Army Service Corps driver attached to the casualty clearing station where our experiments were carried out, was in the second day of what clinically was a typical attack. The complete chart of this man (Chart 30) shows an unusually long initial period of pyrexia, but the clinical symptoms (headache, severe pain in the shins, etc.) and the subsequent relapses, were characteristic enough.

On this day (October 21st) a quantity of Private P.'s blood was taken into citrate solution; 5 c.cm. of the citrated blood were injected at once *intramuscularly* into Private A. The remainder of the citrated blood was dealt with as follows:

The blood was centrifugalized and the plasma removed. Thereafter the corpuscles were washed thoroughly six times with normal saline solution to completely free them from traces of plasma. The washed corpuscles corresponding to 5 c.cm. of blood were then taken, suspended in sufficient saline to make up to 5 c.cm., and injected intramuscularly into Lance-Corporal B——x. The remaining washed corpuscles (equivalent also to about 5 c.cm. of blood), were mixed in a bottle with fine sand and glass beads, and shaken thoroughly so as to break up the corpuscles as far as possible. The mixture was then extracted with saline and the bright red haemoglobin tinted fluid passed through a Berkefeld V filter. The filtrate (16 c.cm. in bulk) was injected intramuscularly into Gunner S. This last part of the experiment, in which an attempt was made to break up as much as possible the corpuscular elements, was undertaken to see if possibly (a thing hitherto unheard of) the virus might be ultramicroscopic and a filter passer confined to the cellular elements of the blood.

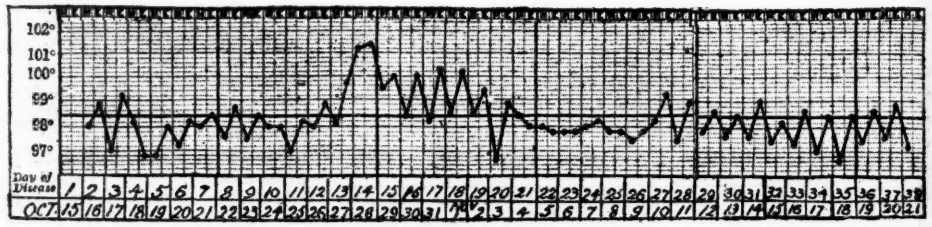


CHART 28.—Private O.

Of the three men injected in this experiment, only one developed the disease—namely, Private A., into whom the citrated whole blood was injected intramuscularly. The incubation period was twenty-one days, and the attack, which was typical, is shown on the accompanying chart (Chart 31).

The other two men were watched for over a month, and they remained perfectly well.

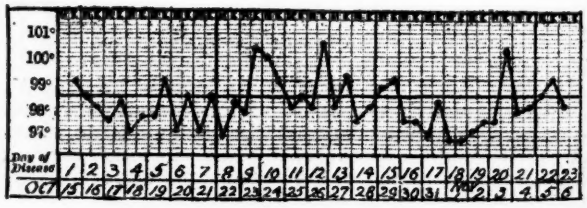


CHART 29.—Private N.

The only positive result obtained from this experiment was, therefore, the fact that citrated whole blood is infective when inoculated intramuscularly as well as intravenously.

Plasma: Corpuscles.

The last experiment of our series had as its basis Private A. (Chart 31), who had been infected with the

citrated whole blood of Private P., injected intramuscularly. On November 10th, when Private A. was in his first day of illness, and his temperature 102° F., some of his blood was withdrawn into sterile citrate solution. All of the citrated blood was taken back to the laboratory for the following reason: It will have been observed that in all the previous experiments the citrated whole blood was injected at once, whereas the remainder of the blood had to be taken to the laboratory for preparation. Thus two or three hours generally elapsed before the remaining injections could be made. It was resolved on this occasion to make all the inoculations at the same time, so as to exclude the possibility of the virus dying out in the intervening two or three hours. All the injections in this experiment were thus made at the same time, about three and a half hours after the blood was obtained.

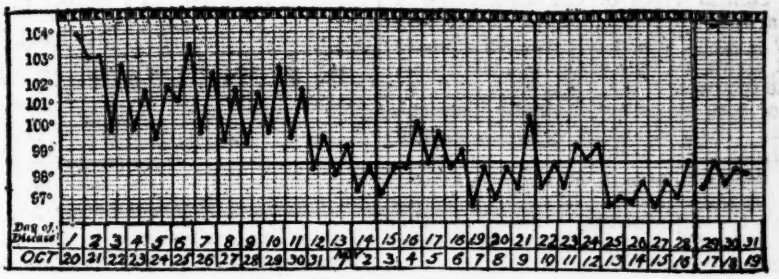


CHART 30.—Private P.

In this, our last, experiment the following tests were made, all the inoculations being intramuscular:

1. Citrated whole blood, both as a control and for the reason referred to in the preceding paragraph.

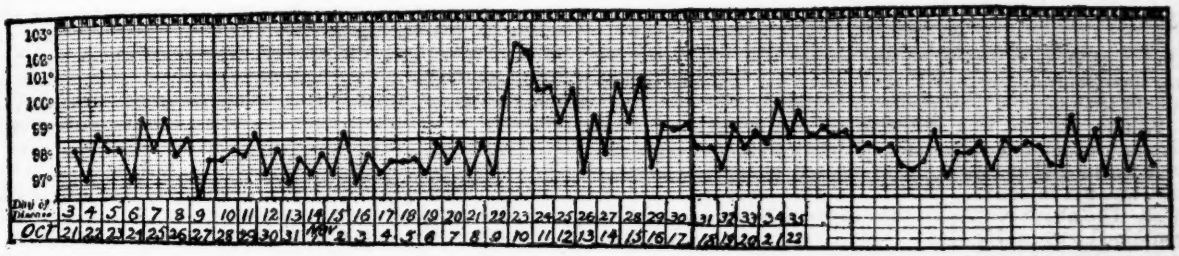


CHART 31.—Private A.

2. Corpuscles freed from plasma by washing with saline.

3. Plasma filtered through a Berkefeld filter candle.

4. The filtered product of broken-up corpuscles previously washed with saline.

The technique of the preparation for the last three parts of the experiment must be briefly recounted. The plasma was obtained readily enough by prolonged centrifugalization, and was quite clear and free from haemolysis. After separating the plasma, the corpuscles corresponding to 5 c.cm. of blood were taken, and washed five times in saline. The corpuscles were always thoroughly mixed with the saline before centrifuging, and 10 c.cm. of normal saline were used for each washing. After the final washing the corpuscles were made up to 10 c.cm. with saline before injection.

For the remaining part of the experiment the corpuscles corresponding to about 10 c.cm. of blood were obtained by the centrifuge, and washed, as before, five times with normal saline. The solid corpuscles were then mixed with fine sand and pounded up thoroughly in a mortar. The mixture was extracted with saline, and the product filtered through a Berkefeld V filter as usual, the result being 22 c.cm. of a clear, deep crimson fluid.

The results of the inoculations in this experiment may now be given.

Private R., into whom the citrated whole blood was injected, took ill thirteen days after inoculation, and his chart is given. (Chart 32.)

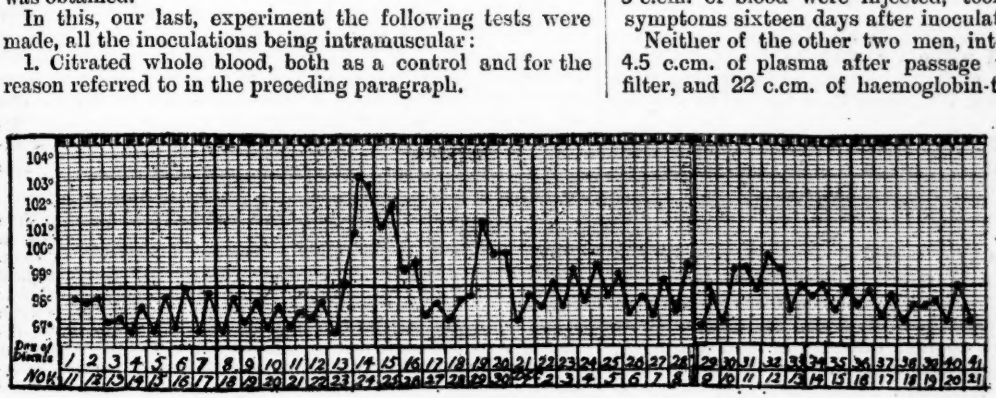


CHART 32.—Private R.

Private P——d, into whom the washed corpuscles of 5 c.cm. of blood were injected, took ill with the usual symptoms sixteen days after inoculation. (Chart 33.)

Neither of the other two men, into whom, respectively, 4.5 c.cm. of plasma after passage through a Berkefeld filter, and 22 c.cm. of haemoglobin-tinted fluid (obtained by breaking up corpuscles and filtering as described) were injected, fell ill in any way during the full month they were observed.

All the men who were voluntarily inoculated with the disease have returned to normal health. Communication has been maintained with some of them, and the only complaint has been a slight return of pain in the legs when fatigued in a few cases.

Other experiments throwing some further light on the illness could have been attempted, but it had always to be remembered that soldiers were the subjects of the tests. An important point to settle, for instance, would have been the question of whether one attack of the disease conferred immunity or not against a second inoculation.

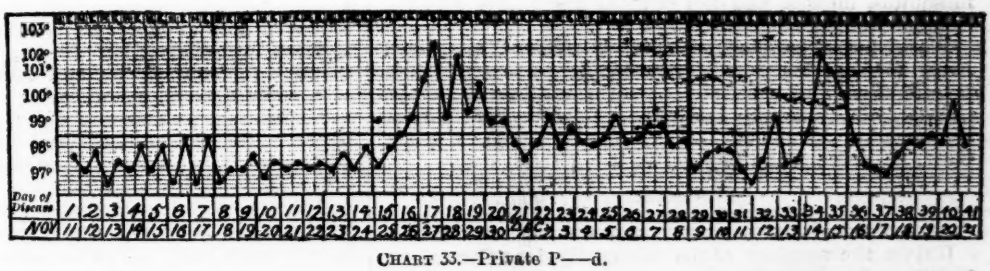


CHART 33.—Private P——d.

SUMMARY AND CONCLUSIONS.

1. The disease is a definite entity, and of infective nature, as is proved by its ready transmission from one person to another by the blood.

2. There are two clinical types of the disease: (*a*) A short fever of about a week's duration, followed frequently after a few days by a short single relapse; (*b*) a longer illness characterized above all by the number, sharpness, and periodicity of the relapses.

3. The symptoms of both types are cliniually identical, the most constant and characteristic being headache, and pain in the legs and small of the back.

4. The two types described are, in our opinion, merely varieties of one and the same disease. In addition to the identity of symptoms, the experimental evidence for this is strong, a typical "short" variety having been shown capable of giving rise to a typical "long" one.

5. The incubation period varies, possibly with the dose of the infective virus introduced. The shortest incubation period in our experimental transmissions was six days, and the longest twenty-two days.

6. The disease is transmissible in every case by the whole blood, whether injected intravenously or intramuscularly.

7. The disease is not transmissible by the serum. In the one instance in which the serum proved infective, haemolysis of corpuscles had occurred before injection.

8. It follows as a corollary to the preceding statement that the virus is not a "filter passer" in the serum, as we thought from analogy that it might be. All our experiments with filtered serum were negative.

9. The plasma was infective in one experiment, but haemolysis of red cells had occurred, so that the plasma was haemoglobin-tinted. The filtered plasma in another test was not infective.

10. The above results seemed to point to the virus being contained *within the blood corpuscles themselves*, whether leucocytes or red cells.

11. Blood corpuscles, after washing five times in saline to remove the plasma, were still found to be infective. This further supports our view that the virus is intracorpuscular.

12. Very many blood films at all stages of the disease have been examined without a parasite being detected. The blood has been examined fresh, under dark-ground illumination, and dried films have been stained in varying ways, without result.

13. Blood corpuscles were broken down, and the haemoglobin-tinted fluid passed through a filter in an attempt to prove the virus an ultra-microscopic one confined to the corpuscles. The fluid when injected, however, was not found to be infective.

14. The only constant morphological change in the blood is the presence of punctate basophilia. This was so marked in some cases as to require very careful investigation to differentiate it from an intracellular parasite. The blood counts, differential and ordinary, did not yield any important results.

15. As regards the means by which the disease is transmitted in nature we have as yet no evidence to offer. The fact that only two classes of men are affected—those from the trench zone and men of the Royal Army Medical Corps—is, however, suggestive. The disease is either contagious from man to man or, what seems much more likely, is carried by one of the common flies or parasites found in the trenches. During the past summer lice, mosquitos, midges, and flies of other kinds have all been common in the Flanders war zone.

We wish to express our thanks to all officers of the Royal Army Medical Corps who have helped so much in this investigation, and especially to Surgeon-General Porter, Colonel Sir William Leishman, Colonel Sir Wilmot Herringham, Lieutenant-Colonel W. P. Peake, Captain G. W. M. Andrew, and Captain Vick.

REFERENCE.
[1] *Lancet*, September 25th, 1915.

UNDER the auspices of the Mental Hygiene Committee of the State Charities Aid Association of New York, a campaign for the prevention of insanity by education of the public has been organized. A number of recognized authorities on mental disease have consented to help by delivering popular lectures.

ANTENATAL CLINICS AND PREMATERNITY PRACTICE AT THE EDINBURGH ROYAL MATERNITY HOSPITAL IN THE YEARS 1909-1915.

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(Continued from p. 192.)

Autumn Quarter, 1912.

THE prematernity cases in the autumn quarter of 1912 were more than usually interesting. In all, 36 women, of whom 7 were unmarried and the rest married, passed through the ward. In two instances only did the mothers leave the hospital undelivered, and in both of these cases the conditions for which they were admitted (vomiting and pyelitis) were relieved. One or two of the other patients went out for a time, but returned for their confinements. As in the preceding autumn (1911), and as in that of 1909, there was one maternal death (from acidosis in early pregnancy); the remaining 35 mothers all did well, although some of them were very ill at the time when they were admitted. The fate of the fetuses and infants was more varied; 17 were born alive, and were living at the time they left the hospital; 2 were alive but still *in utero* when their mothers went out; and 20 perished at different ages, 2 dying a few days after birth, 1 succumbing in labour, and 17 having died antenatally. Seventeen is a large number, but it was swollen to that size by the occurrence of a triplet abortion and by the incidence of at least seven other abortions.

As usual, the indications for the admission to the ward of these expectant mothers varied within wide limits. There were seven cases in which abortion occurred, but the premature termination of pregnancy differed as to its causation. In one of the seven the woman had had repeated miscarriages, and in this her twelfth pregnancy she aborted once more; she had twice given birth to twins. There was no evidence of specific disease in her. Another woman was admitted as probably suffering from tubal pregnancy, but an ordinary abortion occurred; two others aborted because of retroversion of the gravid uterus, and another because of hydramnios. In one case of inevitable abortion no cause at all could be assigned. The seventh case was the triplet pregnancy.

The patient was 36 years of age, and had had four full-time confinements, and a miscarriage at the third month in March of the same year (1912). Her last period was in June. About a week before her admission to the Maternity Hospital (September 17th) she began to bleed and had pain in the lower part of the abdomen, and the day before her admission these symptoms returned. (A puzzling fact about her condition was that the fundus uteri reached almost to the umbilicus, and yet her amenorrhoea was only about two and a half months' duration.) Three months later she expelled a macerated three months fetus; since the membranes were not expelled she was given chloroform and the uterus was explored, when two more fetuses were extracted, along with a commencing placenta and what appeared to be one chorion and one amnion. One of the three umbilical cords was inserted into the placental mass in a velamentous fashion.

Three patients were admitted on account of albuminuria and three because they had had eclamptic fits. One of the albuminuric patients gave birth to twins, one of whom was still born and could not be resuscitated; another expelled a fetus weighing 8 lb. 10 oz., which had been dead *in utero* for some days; and the third delivered herself of a premature infant weighing only 3 lb. 12 oz., which nevertheless survived and did well. In all these three patients the usual dietetic and medicinal treatment was administered, and none of them developed eclampsia. The other three patients all had fits before their admission, and they were all somewhat serious cases; but they got treatment in the prematernity ward for at least two days before labour came on. They all had the stomach washed out, and a large dose of solution of magnesium sulphate was left in it; and two of them had venesection and the intravenous transfusion of a solution of calcium chloride (30 grains to a pint in one and 15 grains in the other). The three mothers all recovered, but one of the infants

was dead-born and one of the other two died a few days after birth.

The other prematernity patients were admitted for the following conditions: Hyperemesis and sickness (3), pyelitis (2), accidents in pregnancy (2), contracted pelvis (2), convenience, for example, poverty (3), acidosis (1), chorea (1), recurrent fetal death in previous pregnancies (1), phthisis (1), myxoedema and dilated heart (1), pernicious anaemia (1), haemorrhage from placenta praevia (1), nervous breakdown (1), spurious pains (1), venereal disease (1), and expected difficult labour from large size of child (1). Two of these cases may be referred to more in detail on account of their special interest, for in one there was marked acidosis which proved fatal, and in the other there was grave chorea which was completely cured by calcium chloride.

Acidosis with Choreic Movements.

The patient was an unmarried girl, 17 years of age, who was about three and a half months advanced in her first pregnancy. The twitching movements had been noticed for two months and bilious vomiting had first occurred a month before her admission. For a fortnight she had been under medical observation, and during that time she had been taking arsenic and chloral hydrate and potassium bromide, but without appreciable effect. There was no past history of chorea, of urticaria, or of erythema circinatum. When admitted to hospital she was found to be suffering from choreic twitchings which affected both sides of the body; she vomited everything taken by the mouth, and she retched frequently, bringing up bile-stained fluid. With an enema a good action of the bowels was obtained. The stomach was washed out with sodium bicarbonate solution and a large dose of magnesium sulphate was left in. Since I had found that calcium chloride had a good effect upon another case of simple chorea gravidarum, I tried it in this case, but it had no apparent effect. The urine had a specific gravity of 1025, was acid in reaction, contained a trace of albumin, showed 5 grains of urea to the ounce, and revealed the presence of both acetone and diacetic acid in considerable amount. The choreic movements ceased, but the bilious vomiting continued. The stomach was washed out on several occasions with the soda solution, some of which was always left in, and an intravenous transfusion of one pint of sodium bicarbonate solution (60 grains to the pint) was given into the median basilic vein. Her pulse began to fail notwithstanding the injection of strychnine and other means of stimulation, and she died six days after admission to the ward.

Chorea Gravidarum.

The patient was an unmarried girl, 20 years old, about the fifth month of her first pregnancy. When 7 years old she had an attack of chorea following upon a fall, and lasting for ten months. It was a severe attack, and a second, also severe, came on with no apparent cause when she was 14; the latter lasted for three months. For three weeks before admission she had noticed twitching movements, but two weeks later these became worse; she had something resembling a fit, and immediately the chorea came to be of a most pronounced and aggravated type. The movements were most violent, her clothes being torn, and her body tossed about in all directions; she was unable to articulate, she bit her tongue when she tried to swallow, and she bruised herself in various places. On her admission to the Maternity Hospital it was found necessary to lay her on a mattress on the floor, as she rolled out of bed on account of the uncontrollable nature of her movements. She had only had a few minutes' sleep for some days. She was given a dose of chloral hydrate and potassium bromide by the rectum, but without effect. On the evening of her admission she was given chloroform, and the following procedures were carried out: 10 oz. of blood were drawn off by venesection; 12 oz. of a solution of calcium chloride (60 grains to the pint) were run into the vein; the stomach was washed out; and a large enema was given. This was followed up by rectal injections of calcium chloride (20 grains in 6 oz. of water) every four hours during the night. No other means of treatment were used. During the first part of the night she was restless, but during the second part she slept continuously for the first time for a week. The movements on the following day were not so uncontrollable; and the rectal injections were continued. On the next day she was able to swallow, the movements were much better, the bowels had moved well, and the calcium chloride was now given (in 15-grain doses) by the mouth every four hours. She was able to take nourishment. A day later she was found lying quite quietly on her mattress, but she became excited a little if looked at by strangers; soon after this she was put into a bed, there being no longer any risk of her falling out. From this point onwards her progress was steady and remarkable. She remained in the hospital for six weeks, partly because her circumstances there were better and partly that she might be under medical observation. An interesting series of observations were made during the time upon her tendon reflexes, and in the later part of her stay the calcium chloride was reduced to 15 grains thrice daily. She then returned to her home, where she remained for a little over two months, returning to the hospital for her confinement. She delivered herself easily of a healthy male child weighing 8½ lb., and both she and her infant did well. There was not the slightest return of the chorea. The case was particularly interesting on account of the immediate and very satisfactory effect of the calcium chloride, for practically no other medicine (save an occasional dose of castor oil) was given.

This was just the kind of case in which in earlier years I should almost unhesitatingly have induced abortion. The stomach-washing may, of course, have had some good effect; but I can hardly doubt that the calcium chloride was the chief agent.

Several of the other patients treated in the prematernity ward in 1912 were of more than passing interest—for example, the cases of myxoedema, pernicious anaemia, pyelitis, and phthisis; but considerations of space forbid their presentation in detail. Suffice it to say that in each instance the mother did well, but one of the infants, that of the woman suffering from pernicious anaemia, was dead-born.

Autumn Quarter, 1913.

Thirty-two patients passed through the prematernity ward during the autumn quarter of 1913. As usual, there was a striking diversity amongst the causes for which they were sent into hospital. Four came in on account of false pains, and two for convenience (poverty, distance from home); to these no further reference need be made. Two patients came in suffering from hydramnios; in one the distension pain was extreme, but labour was not much delayed, there was no *post-partum* haemorrhage, and both mother and child (weight 8 lb. 2 oz.) did well; in the other labour came on at five and a half months, there were uniovular twins, the hydramnios (about two gallons) affected only the second twin, and the mother made a good recovery. There were two cases of threatened abortion, staved off by appropriate treatment, and there was a third case in which a retroversion of the gravid uterus was detected, the uterus was replaced and kept in place with a Hodge-Smith pessary, and the gestation continued. There was one inevitable abortion (due to a recent infection with syphilis). There were three instances of albuminuria; in all three cases, under dietetic and medicinal and other treatment (stomach washing in one), the mothers did well and the children survived. There was a striking difference in the weight of the infants, one weighing 5 lb. 4 oz., another 5 lb. 5 oz., and the other 8 lb. 6 oz. Another patient with albuminuria had gone on into eclampsia (six fits) before her admission to the prematernity ward; she was treated there for a fortnight, had no more fits, and then gave birth to a dead and macerated fetus; her recovery was complete. There were two cases (first pregnancies) in which it was feared that spinal disease (Pott's disease) would seriously interfere with labour. In one of them the spinal disease was accompanied by sinuses, excision of the left hip had been performed, and the adduction of the thigh was very marked; but delivery was accomplished with less difficulty than had been anticipated (forceps being used). In the other case there was very marked kyphosis, but the outlet of the pelvis was not contracted, and with the help of forceps the labour was completed. In both cases the baby survived and did well; the infant's weight in the first was 8 lb. 4 oz., and 6 lb. 8 oz. in the second. There were two interesting cases in which labour was induced before term, not because of contraction of the pelvis, but because in former labours the child had perished on account of its large size. In each case the medical attendant sent the woman into hospital.

In the one woman, a 4-para, the three previous infants had perished; she was already eight months pregnant, and when I tried to push the head into the brim I failed, and had made up my mind to recommend Caesarean section at the full term. On the following day, however, I found the fetal head lying in the brim. Acting on Nature's hint, I induced labour, and succeeded in getting a living child born (weight 8 lb. 10 oz.). Mother and child both did well. The other woman was a 10-para, who had had several miscarriages, and seven full-time labours, all made extremely difficult by reason of the great size of the infant. On the present occasion labour was induced, and a living infant, weighing 8 lb. 10 oz., was born without instrumental aid.

Another patient, a 1-para, came in on account of pendulous abdomen; she rested in the prematernity ward for a few days, during which it was discovered that she also had a large child. Labour would probably have been induced, but her pains came on, and with great difficulty a living male child, weighing 9 lb. 7 oz., was extracted by forceps. Yet another case may be named here;

it was one in which a medical man sent in a woman who had had two difficult labours, in one of which the child perished during its extraction, and severe *post-partum* haemorrhage occurred; the cervix was torn, and the doctor thought that septic infection could be better safeguarded against in the hospital. At any rate, the result was satisfactory for both mother and infant. She was given calcium chloride during her stay.

There was also a woman admitted who was thus able to get several days' rest in the ward between the initial bleeding from placenta praevia and the labour. Both mother and infant did well.

It was certainly an advantage to have this patient under medical supervision, and aseptic precautions were thus facilitated. A patient with cystocele and another with prolapsus uteri were both benefited by a fortnight's rest in the ward before they went into labour. There was also a patient who was sent in supposed to be suffering from hyperemesis, but four days' stay in the ward served to show that it was a passing dyspepsia, and she went out well.

The remaining six patients all suffered from medical disorders—one from icterus gravidarum, one from gastric ulcer, one from chlorosis, one from marked anaemia, one from thromboses of the femoral veins, and one from sarcoma of the thigh. To take the last named first—the woman, whose age was 34, a 7-para, was sent in from Leith Hospital, where it was intended that she should have the left leg amputated for a large and rapidly growing sarcoma. Since the child was viable labour was induced and a living child born, and ten days later the mother was removed to Leith Hospital, where the amputation was carried out. The patient suffering from catarrhal jaundice also came from Leith Hospital. It was her fifth pregnancy. After a few days under appropriate treatment in the ward she went into labour and was delivered of a living child, weighing, however, only 4 lb. 3 oz. The fetal surface of the placenta and the umbilical cord were deeply bile-stained. On the fifth day of the puerperium the last trace of jaundice had disappeared, and the patient was able to go home on the tenth.

Chlorosis.

Another patient, 34 years of age, showed chlorosis in a marked form. She had had five previous pregnancies, and in the fifth she had suffered from anaemia, which caused pallor, dyspepsia, oedema of the feet, and breathlessness, and there had been albuminuria. She was now pregnant for the sixth time, and had arrived at the eighth month; she had the same symptoms as in the previous gestation; and the examination of blood films revealed the characters of chlorosis. There were anaemic bruits and a considerable degree of cardiac dilatation, with pulsation in the neck. On the third day after admission she went into labour prematurely and gave birth to twins, the one weighing about 4 lb. and the other about 3 lb.; the smaller twin died three days later, but the other survived. The mother was kept in hospital for a month, and was given iron and arsenic in large doses; she was much better when she left the hospital.

Acute Anaemia.

Another patient suffered from a somewhat similar group of symptoms, due to acute anaemia (haemoglobin 40 per cent.), with breathlessness, and oedema of the whole body; she was in her ninth pregnancy, and had not suffered so seriously in any of the previous ones. She was put on digitalis and diuretin, and 13 oz. of fluid were withdrawn from the left pleural sac. Nine days after admission she gave birth prematurely to a male child weighing 5 lb., who lived for five days. During the puerperium strong measures had to be taken to keep her alive, and they were so far successful that at the end of fourteen days she went home, although I was willing and indeed anxious she should have stayed longer.

The two remaining cases—that of gastric ulcer and that of femoral thrombosis—both proved fatal, the latter during my term of service and the former under Sir Halliday Croom's care, towards the end of October.

Gastric Ulcer.

I need not enter into details regarding the patient suffering from the gastric ulcer, save to state that she had a number of very severe haematemeses both before and after her admission; she was much benefited by her stay in hospital and by the treatment she received (rectal feeding, etc.), and left, contrary to my advice, after a five weeks' stay. She returned in four days in a very serious state, having had vomiting and haematemesis following upon gross dietetic indiscretions. Slowly she was again brought back into a fair condition, and at the end of my quarter I left her almost as well as when she first went out. For a fortnight, as Sir Halliday Croom informed me, she continued satisfactory; and then the old symptoms returned, vomiting was continuous, making all feeding by the mouth impossible, and persisting even when rectal nourishment alone was given. Consequently, as she was now near the full term, labour was induced. The uterus from the first acted very poorly, and the fetal heart ceased to beat; in the second stage she was much collapsed, so forceps was used to extract, but without success, and finally she was delivered by craniotomy, but she was then moribund.

Of the other fatal case a few details may be given:

Extensive Thrombosis.

The patient, an unmarried woman aged 36, was pregnant for the first time. She was admitted on account of pain in the left leg, and she was found to be suffering from thrombosis of the left femoral vein. Contrary to what one usually finds, rest in bed, supporting the limb in cotton-wool, the use of sedative lotions, and careful regulation of the bowels, failed to improve matters, and in a few days thrombotic changes began in the right leg also. She then rapidly became seriously ill, suffering markedly from abdominal distension and from pain lower in the legs. Induction of labour was begun by means of packing the cervix; but her pulse rapidly mounted to 120 and then to 136, and I decided to open the abdomen as a last resort and deliver by that route. With the co-operation of Dr. Fordyce I opened the abdomen, finding a greatly distended intestine, a thrombosed condition of all the pelvic veins and of some of those of the inferior mesenteric system, and a small perforation of the ileum. I opened the uterus and extracted a dead child (nearly 5 lb. in weight); then hysterectomy was performed, but the patient died before the abdomen was completely closed. I had never before seen so far advanced a case of thrombosis in pregnancy or in the puerperium.

The two cases just described were the only ones in which a maternal death had to be recorded, and the remaining 30 mothers all left the hospital well or much improved. Of the 34 babies (for twins occurred twice), the after-history of 4 is not known, for the mothers left the hospital before delivery; 21 survived and left the hospital well, and 9 died, 4 post-natally and 5 antenatally or intranatally.

(To be continued.)

BRILLIANT-GREEN AS AN ANTISEPTIC.

BY

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MUCH doubt has been cast on the efficacy of the more commonly known antiseptics in the treatment of septic wounds in war surgery. Indeed, the doubt has gone so far that some surgeons have given up the use of antiseptics altogether in these circumstances and rely on physical measures entirely, partly because most antiseptics restrain the reparative action of tissues, and partly owing to an enthusiastic, if somewhat tardy, appreciation of the fact that the phenomena of inflammation are not wholly baleful. No one with any experience of the shell wounds with which we have to deal would rely solely on antiseptics for their treatment, neglecting the means of assisting the natural processes of defence against bacteria, nor, on the other hand, should one blind himself to the fact that these natural defences, even at the best, are defective. In the use of the older antiseptics, their good effect, as regards the bacteria that could be directly affected, had to be balanced against the harm they might do to the tissue cells and fluids concerned with the bacteria not susceptible to their localized action. Recognizing these drawbacks, the surgeon demands an antiseptic that is without harmful effect on tissue cells, that is an adjuvant and not a hindrance to the processes of repair. Certain endeavours, notably by the use of preparations of hypochlorous acid, have recently been made to this end, but much remains to be done before we attain the ideal antiseptic.

I have been pressed by several people who have become aware of my employment of a new antiseptic in France to give an account of our experiences with it. As the method is still in a more or less experimental stage, I can only speak in a general way about it, trusting that others who may be interested will assist towards its improvement.

A brief note by Drs. C. H. Browning and W. Gilmour[1] on the bactericidal properties of various aniline dyes first attracted attention to the possible use of such substances in clinical practice. One of the triphenylmethane compounds used by these workers in test-tube experiments—namely, brilliant-green—was shown to have a very marked bactericidal value; in such excessively weak concentra-

tions as 1 in 5 millions it inhibited the growth of staphylococci, whereas concentrations of 1 in 250,000 of mercury perchloride were required to effect the same result under identical conditions. I have repeated some of their test-tube experiments. No two sets of experiments by different workers, especially in such a matter as this, can be expected wholly to coincide, but the conclusions are in practical agreement. I found that brilliant-green in concentrations of 1 in 500,000 inhibited the growth of staphylococci and streptococci under conditions in which concentrations of mercury perchloride of 1 in 50,000 were required. With colon bacilli stronger concentrations were needed, but the proportion between the two bactericidal substances still held. The method used for the test—Professor Delépine's, I believe—is, of course, only one of several means of estimating the bactericidal properties of chemical substances, and different methods might give different, though not conflicting, results, but still one would be safe in saying that brilliant-green is five to ten times as powerful as mercury perchloride for our purposes.

Browning and Gilmour pointed out that the presence of serum greatly diminishes the bactericidal potency of perchloride solutions, but to a much less extent that of brilliant-green. This effect of serum holds with regard to many antiseptics, and is a most important point in practice, seeing that all wounds are serum-sodden. The potency of an antiseptic in the treatment of wounds is not therefore to be measured by the ordinary test-tube experiments. The practical results alone can give us an estimate of its value, and so many factors enter in that even a very lengthy experience can provide us only with a rough approximate of the relative values of different antiseptics. Fortunately, with brilliant-green we have evidences of its outstanding merit as compared with older antiseptics. Several other aniline dyes have undoubtedly high bactericidal values, and some of them are innocuous to tissue cells, and when it comes to trying them in clinical practice, as almost certainly will be the case, we shall then have the difficulties to face in assigning them their relative values.

I had the opportunity of trying brilliant-green in certain septic conditions previous to the outbreak of war, and was convinced that, in addition to its marked antiseptic property, it had no apparent harmful action on tissue cells; on the contrary, it seemed to stimulate strongly the formation of granulation tissue. These first impressions have been amply borne out by the experience gained in the treatment of wounds at one of the base hospitals by my colleagues and myself. They are probably more enthusiastic than I am myself about its virtues. What the proper strength of solutions should be can only be settled after many trials, but we have used it mostly in solutions of 1 in 1,000. Very often the ordinary tap water gives a precipitate, but this is certainly avoided by the use of distilled water. I have been accustomed to make the solutions in sterile distilled water, but this precaution is probably unnecessary. Generally we used normal saline solution, and the brilliant-green can be dissolved in hypertonic salt solution without fear of precipitation. The solution is a very dark green, slightly turbid sometimes when freshly prepared, but clearing up on standing. It stains the skin very readily, but the stains can be removed by spirit, and should be avoided altogether by the use of rubber gloves, and care has to be taken to avoid staining the bedclothes, though, as a matter of fact, the colour comes out in the washing.

The wound is cleaned out as far as possible by dry swabs and well syringed with saline solution, any foreign material, of course, being removed. With a syringe, then, we apply a small quantity of the brilliant-green solution, perhaps an ounce or so. The stain diffuses quickly over the whole surface of the wound, temporarily colouring everything a dark green. The wound is packed lightly with gauze swabs dipped in the solution, and covered with jaconet to prevent the dye spreading to the patient's clothing. I have not hesitated to plug deep wounds tightly with gauze so saturated, and experience under such circumstances has shown that free drainage is not so necessary as we have been taught to believe. I have removed foreign bodies, such as pieces of clothing, from recesses of wounds after the temperature and sepsis had subsided. Hitherto I have not tried the introduction of brilliant-green into closed septic cavities, such as wounds of the knee-joint, owing to lack of opportunity and perhaps excess of caution. Once we had the opportunity of using it in a case of gonorrhoea, much to the patient's satisfaction.

Ordinary wounds were dressed once a day; very septic wounds twice daily for the first day or two, and then only once afterwards. The results, even after the first dressing, are very striking. The first thing we mark is the cessation of the foul smell. Almost invariably this is achieved as the result of one dressing. It is a very strong antiseptic so far as anaërobic organisms are concerned, and though the rôle of the anaërobes, that contaminate practically all the wounds we see, may not be very deadly, yet their subordinate effects are not negligible. When the first dressing is removed we see that only the skin and necrotic tissues are stained. Living tissues in the wound retain their normal colour. The fact that dead tissue is stained an intense green is a great advantage, as it enables us without any trouble to identify and remove it. Before the wound was first dressed it might be that there was a thin serous discharge with no really healthy reaction of the tissues—the tissues were stunned, as it were—but after one or two dressings the repair is evident. It may seem a strange thing to be glad to welcome, but the brilliant-green does at first encourage the formation of pus in such wounds, and we have learnt to appreciate what in our youthful ignorance we scoffed at, the desideratum of our grandfathers, "laudable pus." But this evidence of the natural defensive powers of the body, welcome though it is, does not outstay its strictly necessary time. It fairly quickly diminishes, and is at no time copious.

Another very striking feature is the rapidity with which good red granulations appear and progress. Undoubtedly the impression is accentuated by the contrast in colours between the adjacent skin and the granulation tissue—the green and the red; but, allowing for that, the tissue reaction is indeed well marked. It sometimes happens that after a few days the diminution of sepsis ceases to be progressive, and the granulations are paler and flabby. It seems, then, as if the brilliant-green had lost its virtue. Our enthusiasm is tempered. What is the cause of this arrest I have not yet determined; whether it be that the tissues are over-stimulated, or there has remained a strain of bacteria that have learnt to be resistant to the action of the dye, or the concentration of the substance is not suitable. In a few cases in which I made cultivations I found practically pure cultures of long-chained streptococci that grew very sparsely, whereas previously the growth had been very mixed and very abundant. When we came across such a condition of arrest we found that if we changed our treatment the healing process was resumed, and our main stand-by was iodine water. Doubtless many other antiseptics would get over the difficulty. Other aniline dyes such as crystal violet have been shown to be strongly bactericidal, and are probably innocuous to tissue cells, and might usefully be employed to supplement the action of brilliant-green.

The results though striking are not marvellous. Some cases are disappointing in that we have had to evacuate them to England with the sepsis still going on, but these cases have resisted all other modes of treatment, and are allied with a general low condition that the associations of home and freedom from anxiety may be expected to cure.

The manufacture of brilliant-green as well as most of the other aniline dyes was confined to Germany, and probably the available stock in Britain is very small, but any one who has seen the results of its use in septic wounds would not hesitate to press on the newly started industry the advisability of preparing this substance for a more extended clinical test of its utility. Fortunately a little goes a long way.

REFERENCE.

1 *Journ. of Path. and Bact.*, vol. xviii, No. 1, p. 144.

DR. SOMERVILLE OLIVER, of Corstorphine, Midlothian, left personal estate in the United Kingdom valued at £27,714.

DR. WILMER KRUSEN, director of the department of health and charities, Philadelphia, has appointed a commission to study the problem of pneumonia. The chairman is Dr. David Riesman, professor of clinical medicine in the University of Pennsylvania, and among the members are Professor Hobart A. Hare, Jefferson Medical College, and Professor Judson Daland, of the Medico-Chirurgical College in the University of Pennsylvania.

THE PHYSICS OF A SURGICAL DRESSING,

With Special Reference to the Harmful Effect of Using Impermeable Material Over Septic Wounds.

BY

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A number of most interesting papers by Sir Almroth Wright have recently appeared in the British Medical Journal, in which he demonstrates by a most complete series of ingenious laboratory experiments a method of securing the drainage of septic wounds received in war. He further gives an account of the practical value of these methods as employed in the treatment of men wounded in France during the present war. In his last communication, Part III of his lecture on "Wound infections and their treatment,"[1] he gives his scheme for the practical treatment of wound infections "from the first-aid post back through the whole system of hospitals." In the field ambulance he applies a wet dressing of 5 per cent. solution of sodium chloride and 0.5 per cent. sodium citrate, and he states, "over the top of all ought to come a layer of *impervious protective tissue*" (the italics are mine). I wish to suggest that as a scheme for "drainage," the effectiveness of the dressing is entirely upset by the "impermeable protective." It should be noted, too, that in the same paragraph he definitely states that his object is "the procuring of drainage."

My attention was first called to the harmful use of impermeable material such as protective, oil-silk, rubber adhesive, etc., by a paper on the physics of a surgical dressing published about ten or fifteen years ago in the *Annales de l'Institut Pasteur*. Since reading it I have had many opportunities of observing clinically, in my hospital wards in Toronto, the deleterious effects of impermeable dressings.

The experiments, so far as I can recall them, were of the following character: An animal was prepared by shaving a portion of the skin surface and then an area was excoriated sufficiently to draw blood. This area was covered with powdered strychnine and a piece of oil-silk was secured over it, so that evaporation from the surface was prevented. The animal died of strychnine poisoning. Another similar experiment was done, save that the oil-silk was replaced by an absorbent dressing, allowing of evaporation from the surface and absorption of secretions into the dressing. These animals showed no symptoms of poisoning. Similar experiments were done with some virulent bacteria, with similar results: under impermeable oil-silk septic absorption occurred, and under a simple absorbent dressing no sepsis resulted. There were, too, a series of laboratory experiments conducted to show the value of absorption into the dressings and the method of securing it by free evaporation from the surface. A flask was filled to half its capacity with water, and a wick of absorbent gauze saturated with water was placed so that one end of the wick lay in the water and the other projected beyond the mouth of the flask so as to form a tuft. A fragment of some aniline dye was placed in the gauze level with the neck of the flask, and very soon the gauze tuft projecting beyond the mouth of the flask was stained with the dye. A similar experiment was carried out with, however, the addition of a bell jar placed over the flask to prevent evaporation; the addition of the bell jar not only prevented the aniline dye from rising into the projecting tuft, but the dye actually descended to some extent towards the water in the flask. I will not vouch for the accuracy of detail, but I attempted to repeat one of these experiments in the laboratory tent in our hospital here. I took two small flasks, each about one-third filled with water; I saturated wicks of gauze in water, and immersing one end of the wick in the water in the flask, the other end was allowed to project as a tuft beyond the mouth of each flask. I inserted a fragment of crystal violet in the gauze at the level of the neck of the flask; I then tied a piece of oil-silk as a cap over the top of one of the flasks, allowing the gauze tuft to project within this protective cap. After some hours the dye had risen into the tuft of gauze projecting from the unprotected flask; on the other hand, in the flask covered by oil-silk the dye had failed to rise in the tuft, and had descended somewhat in the wick. This last flask was left overnight, and next morning the oil-silk was removed. Within an hour the dye mounted to the top of the tuft.

I have made many clinical observations as to the effect of impermeable dressings. I may cite one example: A woman was desperately ill with subphrenic abscess. I succeeded in establishing drainage, and her condition improved. Some ten days afterwards I was disappointed to find her temperature rising; the frequency of the pulse increased, and there was every evidence of a recrudescence of serious symptoms. I had not seen the dressing for a few days, and I found that the nurse had placed a large piece of oil-silk over my dressing in order to protect the bedclothes from getting soiled. I at once suspected the impermeable covering as responsible for the trouble, and therefore continued to apply the same type of dressing, with, however, the omission of the oil-silk. The patient improved promptly, and all symptoms of absorption disappeared. The sister in charge of the case, on my explaining what had occurred, made a somewhat shrewd observation. The sister told me that she had observed, when a moist piece of alembroth gauze (charged with aniline dye) was applied under oil-silk to the unbroken skin, the dye stained the skin deeply so that it could not be removed by washing; on the other hand, moist alembroth gauze without oil-silk never produced staining. This, indeed, is a good demonstration of the effect of impermeable coverings over the dressing.

The hospital with which I am at present connected has only been in operation some six weeks, and hardly a day passes but patients are admitted with impermeable coverings over septic wounds. In one a septic thumb had been opened two days previously, and when the patient came to me a piece of oil-silk formed a cap over the entire thumb; outside that was some wool and a bandage. Another man had a septic wound of the leg dressed with moist gauze held in place by a patch of adhesive plaster, which overlapped the gauze in all directions. We have already seen dozens of similar cases in our short experience here of the employment of impermeable coverings over moist dressings. We have been able to note, too, the prompt improvement on the omission of that covering in our dressings; frost bites with broken skin, shrapnel and bullet wounds—I am within the mark when I say that by far the majority of all septic wounds admitted have had an impermeable covering. The custom is unquestionably widespread.

What has tempted me most to write this note is the fact that so high an authority as Sir Almroth Wright advocates the use of impermeable protective over his dressing. This covering, I fancy, is added for some specific purpose, but its object is not stated and there has been nothing of similar character used in his laboratory experiments. It is true it increases the penetrating power of an antiseptic, but Sir Almroth Wright's avowed object is drainage, and beyond all doubt it is infinitely better to depend upon drainage into the dressing than attempt to render a wound aseptic by confining the discharges and driving the antiseptic in.

Impermeable coverings used for the purpose of preventing evaporation are, indeed, sometimes useful. Thus, in a healing ulcer one finds the healing process will proceed well under a moist piece of lint entirely covered by protective; so, too, one uses it in skin grafting. Such dressings are removed easily, they do not stick, and the delicate epithelium is not disturbed on taking off the dressing. The impermeable covering is often a favourite dressing, too, for the very reason that "it does not stick," and particularly in children one is tempted to use it because the dressing can be changed without pain. The cases, however, in which its use is justifiable are only those which are either aseptic or have a very small degree of infection—cases, in fact, comparable to those Sir Almroth Wright speaks of as capable of being closed by secondary suture. Even in these cases, however, we sometimes fail to secure success, and when employed we should carefully watch the results.

In my opinion the best dressing for septic wounds is a moist dressing, and we found the hypochlorous acid solution wonderfully effective. The moist dressing is applied directly to the wound, and over this dry gauze. Everything should be done to favour free evaporation from

the surface and absorption into the dressing, which should be frequently changed. I am convinced it would be greatly to the advantage of the wounded if impermeable protective and oil-silk were entirely removed from the surgical armamentarium of the army. Their use in surgery is very restricted, and as they are employed in military surgery at present they do far more harm than good.

REFERENCE.

[1] BRITISH MEDICAL JOURNAL, November 13th, 1915, p. 717.

Reports
ON
MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

FULHAM MILITARY HOSPITAL.

SEPTIC COMPOUND FRACTURES.

AT the fourth clinical meeting of the staff of this hospital, on January 11th, Dr. BELFRAGE opened a discussion on septic compound fractures due to gunshot wounds. He outlined the chief indications as follows: (1) Vigorous treatment of the sepsis; (2) the securing of comfort to the patient and ease of nursing; (3) early movement of the joints; (4) correction of deformity. He had found the ordinary splints of little use, and anticipated much help from Mr. Hey Groves's modification of Hodgen. He emphasized the desirability of paying more attention to obtaining a useful limb than to accurate apposition of the fragments. It was doubtful whether extension could be usefully employed in the early stages; later on the fragments could be adjusted under an anaesthetic.

Mr. CHAPPLE thought that in the arm the exact position of the fragments was often not of vital importance in securing a useful limb; but in the leg the necessity of parallelism for walking dictated the greatest care as to their position. He advocated operation where the disturbance of the fragments rendered it necessary, but in septic cases it was essential to wait until the sepsis had been dealt with before attempting plating. He also referred to a great truth established by Sir Arbuthnot Lane—that in dealing with a much comminuted fracture it was not necessary to get the whole circumference of the ends approximated. If a small portion were put in apposition the gap would be filled by new bone laid down if the after-treatment were suitable.

Mr. LEE said that generally there was too much haste to remove sequestra. They should be left till complete separation occurred, for frequently an apparent sequestrum proved to be a focus of new bone formation. He emphasized the importance in the treatment of sepsis of leaving, or if need be making, a very widely open wound; the surgeon should not meantime be too anxious about the displacement of the fragments.

Dr. CARNEGIE DICKSON, pathologist, referred to the extreme rapidity with which cancellous tissue might be absorbed to make room for active marrow in acute general diseases, and with regard to the duration of a septic focus, referred to a case in which a projectile had been removed six months after complete healing, and at the operation pus was found containing organisms of feeble vitality but still capable of growth.

Dr. KINNIER WILSON expressed the opinion that in some cases the late disability of muscular movement was greater than could be explained by mere disuse. Some cases were explicable on the theory that a defect was present in the reflex arc through the spinal cord. Possibly the constant afferent impulses from the diseased focus produced a dynamic functional change in the anterior horn cells and consequent muscular atrophy. Electrical treatment in such cases was more important than massage. Repeated efforts on the part of the patient sometimes sufficed to reawake innervation through the reflex arc.

The chairman, Major PARSONS, O.C., advocated putting up fractures under *x*-ray illumination. The prevention of movement in the injured tissues was of great value in limiting sepsis. The joint involved in a septic process required immobilization, while the other joints required to be moved. Continuous extension was valuable; often the weight applied was too small; attempts should be made from the first to rectify deformities. In treating sepsis transverse incisions, which tended to remain gaping, were very important. The introduction of solid sodium chloride, which had given good results in France, should be tried, as also the introduction of solid urea, on which Professor Symmers of Belfast had reported favourably. He had obtained good results in septic conditions by Bier's treatment before the war and thought greater use might be made of it.

Reports of Societies.

THE DAILY FOOD RATION OF GREAT BRITAIN.

AT the meeting of the Section of Anatomy and Physiology of the Royal Academy of Medicine in Ireland on January 14th, Professor W. H. THOMPSON made a communication on the daily food ration of Great Britain. He said that from a survey of the total food supply of Great Britain for the year of the first census of production (1908), the only year for which it was so far possible to make anything like an accurate computation, the daily food supply per *man* of the population, as calculated from the returns, came out to be as follows:

Flour and meal	14½ oz.	Cheese	½ oz.
Flesh meat	8 oz.	Condensed milk	⅛ oz.
Fish	2 oz.	Less than half an egg.	
Potatoes	15½ oz.	Fresh fruit...	3½ oz.
Other vegetables ...	4¾ oz.	Dried fruits and nuts ...	½ oz.
Milk	⅓ pint.	Cocoa and chocolate ...	⅛ oz.
Butter	1 oz.	Salad oil	⅛ oz.

This ration provided the following:

Protein	101.49 gm.	Fat	136.36 gm.
Carbohydrate ...	587.12 gm.	Energy value ...	4,127 calories.

The returns did not, however, include all the home supply of cheese, eggs, poultry, or rabbit meat. The estimate of green vegetables consumed as human food, particularly of cabbage, was probably also too low. Making additions to cover these omissions, would bring the ration up to:

Protein	104.26 gm.	Fat	138.83 gm.
Carbohydrate ...	587.84 gm.	Energy value ...	4,167 calories.

As a fair estimate it would be safe to say that the British food ration per *man* per day does not exceed:

Protein	105 gm.	Fat	140 gm.
Carbohydrate ...	590 gm.	Energy value ...	4,190 calories.

Making deductions for loss in distribution, the value of the ration, as purchased, would approximately be:

Protein	97 gm.	Fat	129.5 gm.
Carbohydrate ...	546 gm.	Energy value ...	3,875 calories.

This did not provide more than enough for moderately hard muscular work. Dr. Langworthy placed the energy value of the ration, as purchased, for moderate work at 3,800 calories. The ration was remarkable in the relatively large amount of fat it contained, but in this respect it corresponded closely with the estimate of the German food supply before the war, as published by the Eltzbacher Committee. Professor Thompson drew two conclusions: (1) That the tendency in urban and industrial populations is to increase the consumption of fat at the expense of the protein; and (2) that the ration could not well be reduced without endangering the efficiency of the working man. Economy could, however, be introduced by substituting protein from vegetable sources for a further part of the more costly meat supply.

THE *Journal of the American Medical Association* states that 2,451 members of the medical profession in the United States and Canada died during 1915. The average annual mortality for the period from 1902 to 1915 inclusive was 15.71 per 1,000. The chief causes of death in order of frequency were senility, heart disease, cerebral haemorrhage, pneumonia, accident, and nephritis. The age at death varied from 21 to 102, with an average of a little over 59 years. The number of years of practice varied from 1 to 79, the average being 32 years 4 months and 26 days. There were 104 deaths from accident and 44 cases of suicide. Of those who died, 1 had been a member of Congress; 2 governors of States; 4 United States consuls; 11 members of State senates; 39 members of the lower houses of legislatures; 35 had been mayors; 33 aldermen, and 62 had served as justices of the peace, as clerks in the Government service, or in various other civil positions.

Reviews.

NERVE STRUCTURE AND THE MIND.

PROFESSOR LLOYD MORGAN has defined instinctive behaviour as "that which is on its first occurrence independent of prior experience; which tends to the well-being of the individual and the preservation of the race; which is similarly performed by all the members of the same more or less restricted groups of animals; and which may be subject to subsequent modification under the guidance of experience." He regards it as a more or less complex response to a more or less complex internal or external stimulation, dependent upon inherited nerve structure. This is as much as to say that instinctive action is action based primarily upon organized racial experience, whereas, of course, intelligent action, properly so called, is based upon individual knowledge and experience. Taking this definition as his point of departure, Mr. N. C. MACNAMARA, in his manual on *Instinct and Intelligence*,[1] traces the parallel developments of the physical structure and the psycho-physiological functions of the nervous system from its rudimentary dawn in the nucleus of the protozoa and the palpocils of certain hydromedusae, through the circumoral and radial nerves of the starfish, the gangliated chains of the earthworms, the primitive brain of the crustacea and of insects, and through the various grades of vertebrate animals up to its consummation in man. He shows how side by side with increasing complexity of structure there appears a corresponding power of self-adaptation on the part of each new organism to a wider range and more intricate quality of demands in response to stimuli from within and from without. He shows, too, how the power of modifying instinctive response by the results of individual experience and of ultimately controlling the former by the latter to a considerable extent is conditioned by the development of those pallial or cortical elements which culminate in the sensori-motor and association areas of the human brain. Broadly speaking, it may be taken as proved that the ratio of development of the cerebral cortex to that of the basal ganglia is that of the transcendence of instinctive by intelligent behaviour. The functional ideal is not, however, a tyrannous domination, still less a suppression of the one set of activities by the other, but a harmonious co-operation between them, in so far as that is compatible with the due supremacy of the higher and later evolved.

In Mr. Macnamara's opinion the prevailing methods of education tend to ignore the just claims of instinctive capacities, which, as he justly remarks, can be modified but not eradicated. In his last chapter he has given some suggestions as to the means of remedying this defect, which are worthy of careful attention by those concerned. But, apart from this practical purpose, the book is well worth reading as a singularly clear and concise account of an important and interesting subject.

PATHOLOGY.

IN the preparation of the sixth edition of his *Textbook of Pathology*[2] Dr. ALFRED STENGEL has associated himself with Dr. HERBERT FOX, Director of the Pepper Laboratory of Clinical Medicine, University of Pennsylvania. Dr. Stengel states in his preface that several sections of the book have been very largely recast or almost wholly rewritten. New sections on transmissible diseases and on the pathology of diseases of the eye, ear, and skin, "brief and general in scope," have been added, and the chapter on "technic" has been omitted. It seems doubtful whether the new sections have done much, if anything, to enhance the value of the work as a textbook for students. Twenty pages, several with illustrations, are made to suffice for the pathology of diseases of the eye, with the result that this chapter is little more than a glorified dictionary of medical terms. Unfortunately in this chapter, as well as in other parts of the book, sufficient care has not been taken to bring statements made elsewhere in the work into line. Thus on page 964 we read that "the body of the cornea is composed of lamellated epithelium," a statement which cannot be accepted, whereas on p. 119 we are told that the cornea is composed of "layers of parallel fibres." On p. 953, under the heading "The Lids," is the following paragraph: "Edema may be traumatic or accompany ocular inflammation. It occurs in angio-neurotic edema and exophthalmic goiter." Brevity of this kind is misleading. The claim that the book has been subjected to extensive revision to bring it up to date is undoubtedly justified, but the process might have been carried further. For instance, in discussing fat embolism, the statement that sudden death may occur when a large number of pulmonary vessels are obstructed by oil drops still stands unqualified. Experience has shown that death, certainly due to this cause, may not ensue for many hours or even days, and that a train of symptoms is set up which are sufficiently characteristic to be of real diagnostic value. In the section on "Edema" on p. 73 the authors state that increased blood pressure alone is a sufficient cause, and make no mention of Starling's well-known work controverting this view. Yet on the next page they say that increased permeability of the capillary walls "probably plays a part in every case of edema." The sections in the chapter on retrogressive processes suffer from want of a clearer arrangement of the subject matter. The section on fatty degeneration is a case in point. Under pneumonokoniosis we are told that inhaled substances probably do not reach the alveoli, but are caught up by the "bronchial cellular cilia"; and yet, in dealing with pulmonary tuberculosis, it is said that "the tubercle bacillus is carried directly to the lungs in the inspired air, or more rarely it may lodge in the pharynx," etc.

No attempt is made to classify tumours. The term "lymphadenoma" is used for any tumour of a lymph gland, such as lymphosarcoma, and the terms "destructive adenoma" and "malignant adenoma" are retained; the student may find them misleading. Splenic anaemia is dismissed in nine lines; Gaucher's disease is mentioned in the text, but not in the index. In the latter anaemia of the spleen and splenic anaemia are twice grouped together under the same heading, as though synonymous terms. The section on congenital diseases of the heart is inadequate, and although full discussion of such a subject is not possible in a general textbook of pathology, it was to be expected that some reference to Keith's work on the bulbus cordis and its bearing on pulmonary atresia would have appeared. In the etiology of haemoptysis (p. 541) no mention is made of infarction, whilst elsewhere occlusion of a bronchiole is given as a possible cause of the latter lesion. The statement on p. 627 that "herniae occasionally are congenital, more often they are acquired," seems to be an inversion of the fact. Under "Diseases of the bones," on p. 837, is a paragraph headed "Congenital rickets, or chondrodystrophia foetalis or achondroplasia, etc." The essential difference between rickets and chondrodystrophia, and also osteogenesis imperfecta, has now been made sufficiently clear, from the point of view of morbid histology, for the term "congenital rickets" to be deleted in this connexion. Its retention obscures the pathology of these diseases. The essential underlying change in rickets—namely, the excessive production of uncalcified osteoid tissue in the bones affected—is not brought out.

ZOOLOGY.

THE fact that SHIPLEY'S and MACBRIDE'S elementary textbook of *Zoology*[3] has now passed into a third edition is sufficient testimony to its merits and popularity. Written primarily for students of zoology, it is in only a slightly less degree valuable and helpful to the student of medicine. The growth of our knowledge of such subjects as embryology, cytology, parasitology, and tropical medicine has shown how important to medical men is a knowledge of zoology. The book is comprehensive, dealing in turn with all the orders of invertebrata and vertebrata. The method adopted is to deal in some detail with a typical representative of the order, and then to add a short account of those

[1] *Instinct and Intelligence.* By N. C. Macnamara, F.R.C.S. Oxford Medical Publications. London: H. Frowde, and Hodder and Stoughton. 1915. (Cr. 8vo, pp. 224; 17 figures. 6s. net.)

[2] *A Textbook of Pathology.* By A. Stengel, M.D., Sc.D., and H. Fox, M.D. Sixth edition, reset. Philadelphia and London: W. B. Saunders Company. 1915. (Roy. 8vo, pp. 1045; 15 plates, 468 figures. 25s. net.)

[3] *Zoology: An Elementary Textbook.* By A. E. Shipley, Sc.D., F.R.S., and E. W. MacBride, M.A.Cantab., D.Sc.Lond., F.R.S. Third edition. Cambridge Zoological Series. The University Press. 1915. (Demy 8vo, pp. 772; 360 figures. 12s. 6d. net.)

which have undergone special variation. The detail in which these types are considered naturally varies, and a special effort has been made in the cases of the cockroach, the garden spider, and the crayfish to give the student a conception of insecta, arachnida, and crustacea as "going machines." All through the book, moreover, as the authors claim in their preface, they have endeavoured—and we think successfully—to associate the description of structure with an account of its purpose and function. If we have any complaint to make it is that so meagre an account is given of the theromorpha, a group of animals of special interest because they have thrown a flood of light on the evolution of the mammalia. The authors would have been well advised to have spared some few pages and illustrations for this particular group. The book is written in an easy, interesting style, and forms an admirable introduction to such larger works as *The Cambridge Natural History* or *The Treatise of Zoology*, edited by Sir Ray Lankester.

NOTES ON BOOKS.

PROFESSOR E. B. POULTON, in his Romanes Lecture[4] delivered at Oxford in December, anticipated a good deal of what is contained in the memorandum put out by a committee of men of science to which we referred at some length last week (p. 209). He gives chapter and verse for the glycerine story, tracing it to a statement made in the Prize Court by the Solicitor-General, Sir F. E. Smith, on July 20th, when, according to the report in the *Times*, he said "it had been discovered recently that glycerine could be made from lard." The oddest thing about the incident is, perhaps, that the Solicitor-General was appearing for the Treasury, which, one might have supposed, must have had the assistance of the Board of Trade in framing his instructions. In a debate in the House of Commons a few days afterwards (July 26th), the Parliamentary Secretary to the Foreign Office grew very angry with Major Hunt because he had said that the Government was saying to men, "Come and defend your country; you are badly wanted; your country is in the greatest danger," and at the same time said to the most inhuman nation that probably any nation has ever had to face in modern times, "We will allow you, although we could prevent it, to be provided with the ammunition to kill our soldiers, whom we are begging to defend us and our country." Lord Robert Cecil exclaimed that Major Hunt seemed really to believe what some of the more ignorant and more venomous public prints were not ashamed to say. The discussion was about cotton, but it might equally have been about glycerine and the lard or other fats from which it can be made. The main object of the lecture was to show what the country had lost by the national neglect of science, and in repelling the suggestion that improvement in this respect would foster the callous materialism and brutality which have been such a shock to the world, Professor Poulton said: 'It is not German science which is responsible for the horror, but the German spirit, which has used science, as it has used everything else except a sane psychology, for its own ends."

The *Medical Clinics of Chicago*[5] is a bi-monthly periodical started by its publishers to satisfy a demand of the medical practitioners in and about that great city. Its matter is furnished by clinical teachers in Chicago, and covers the field of internal medicine. It consists of transcripts of expositions and discussions of cases held at the bedside or in the lecture theatres of the Chicago hospitals. Among the cases dealt with in the first number of the periodical are instances of lung abscess, nephritis, gout, infantile tuberculosis, leukaemia, heart failure, aortitis, aneurysm, and the like. There is a natural directness about these transcripts that makes them easy reading. This feature, perhaps, militates against the attainment of the completeness and exactitude of statement met with in carefully composed papers as contrasted with speeches and orations. The reader will find cases of greater and of lesser interest described in these pages. He will not learn much that is new as to their symptoms, signs, or etiology, and no great calls will be made upon his intelligence. The periodical should be of interest to medical men who wish to furbish up a somewhat casual and out-of-date acquaintance with practical medicine.

[4] *Science and the Great War.* By E. B. Poulton, D.Sc., M.A. The Romanes Lecture, 1915. Oxford: The Clarendon Press. 1915. (Med. 8vo, pp. 47 2s. net.)

[5] *The Medical Clinics of Chicago*, July, 1915. Vol. i, Number I. Philadelphia and London: W. B. Saunders Company. 1915 (Med. 8vo, pp. 208; 37 figures. Published bi-monthly, six numbers a year. 8.00 dols. per year. Foreign, 35s. net.)

MATERNITY AND CHILD WELFARE.

DURING the last few years the focussing of attention on the loss to the community caused by excessive infant mortality has resulted in many voluntary efforts for dealing with some of the causes of the evil. Numerous mission stations of a modern order have been opened in the poorer quarters of our cities under such names as "The Baby's Welcome," "Babies' Clinics," "Infant Consultations," "Mothers' Kitchens," "Schools for Mothers," and the like. When in the hands of ordinarily capable workers these centres have had a degree of success that has speedily called for the extension of their work, and with that the demand for more money and State support. The State, in the guise of certain Government departments, has lent a considerable measure of support, and from the early tentative efforts at baby culture there has now sprung a full-fledged State scheme which is urged for adoption by the country as a whole.

In several circulars issued by the Local Government Board during the years 1914 and 1915 the scope and intention of this organized scheme of baby culture is set forth. The following is a summary of that scheme.

It is intended that the work of each local authority should be directed along two main lines of endeavour—first, the visiting of all mothers *in fact*, and, in so far as may be possible, of all mothers *in expectation;* secondly, the establishment in every area of centres where the examination of mothers, babies, and children under school age should be undertaken at regular intervals. The purpose of these visits and examinations is stated to be in the main to give advice, in general on domestic hygiene, and in particular on the difficulties of the individual mothers and children. But the possibility of some sort of simple medical treatment is held out as one of the advantages of the centres.

The scheme crystallizes round the Notification of Births (Extension) Act, 1915. With the extension of compulsory notification of birth to the whole country, each medical officer of health has immediate information of the birth of a child. From that notification radiates the health visitation as part of the normal public health work of the district. Within two or three days of the notification an official visitor is sent by the medical officer of health to such homes as he judges advisable. The visitor sees the mother and baby, gives advice on the care of the infant, takes a general survey of the home, the cleanliness and sanitation thereof, and in particular urges the mother to take her baby as soon as possible to the "centre," and to consider that centre as in some sort the place for the standardization of her infant; there she will know how it fares, if its height, its weight, and its health are as good as may be, and there she will receive advice on all the difficulties that occur in the upbringing of the little one, and all this right on until the child is entered on the books of the local elementary school, when the record will be handed on to the school doctor. When the little one comes to learn of all this it will be able to echo in truth the words of the psalmist: "In thy book all my members were written." But the work of the centres will not be limited to the oversight of the mothers *in fact* and their infants. It is intended that the work should have a very definite extension to the mothers *in expectation*. There is no legal notification of pregnancy, so that the medical officer of health has to trust to the willing co-operation of the medical men and midwives of the district for information concerning the mothers in expectation, or to such chance knowledge as may come to him through voluntary agencies or his own health visitors. The object of obtaining this information is that the expectant mothers should be urged to attend the centres for medical examination and that the health visitors should visit them at their homes.

The Health Visitors and Their Work.

Up to the present the nature of the qualifications of the visitors has not been fixed on definite lines. It is suggested by the Department that the three most useful qualifications for non-medical health visitors are those of: (1) A trained nurse, (2) a certified midwife, and (3) a certified sanitary inspector. The first training will enable the visitor to give important instruction in the hygiene of child life; the second will enable her to supplement the work of the

midwife even to acting as an inspector of midwives; and the knowledge of sanitary work will enable the visitor to appreciate the state of a house and its sanitary arrangements, and bring her into intimate relation to the regular sanitary officers of the district.

The nature of the advice to be given to the mother *in fact* is not outlined: it may be presumed to depend on the individual case of mother and child. But on the visitation of the expectant mother there is an indication in some notes prepared by Dr. Janet Lane-Claypon. The feeding and clothing of the woman are subjects for suggestion, the improvement of her health, and in particular the state of her teeth, the care of the breasts, the best methods of combating constipation and the recommendation of aperients are to be dealt with. The state of the house is to be looked into. The provision of clothing for the expected infant is to be a matter of kindly inquiry and suggestion. Much stress is laid on the necessity for impressing on the woman the advantages of breast feeding, the best means for securing a good supply of milk, and the best times for feeding. The scope and character of the advice suggested is excellent, and if that given to the mother *in fact* is as good as that proposed for the mother *in expectation*, many women and many infants will be the better for the advice.

With regard to the number and frequency of the visits, the official suggestion is that the health visitor should go first within two or three days of the notification of birth, and that eight visits should be made during the first year of the child's life. Thereafter only sufficient are to be made to keep in touch with the child, so as to encourage attendance at the Child Welfare Centre for purposes of medical inspection at such intervals as will enable a record to be kept of health and sickness up to the time when school attendance begins.

The Centres.

It will be evident from the foregoing that the main work of the centres will be with the mothers and the children. But the circulars show that a very strenuous effort is to be made to increase to the greatest possible extent their work in relation to the expectant mothers.

The actual scope of work of the centres is best given in the official terms: "The chief object of the centre is to secure the medical supervision of the expectant and nursing mother and of her child. This supervision takes the form of a medical consultation, followed by the giving of hygienic advice, and by treatment, especially for minor complaints, when local circumstances indicate the need for this."

It would appear that the expectant mother, when persuaded to attend the clinic centre, will only be seen once in the ordinary course of events. She would be examined, the urine may be tested, and advice on the care of her general health, with particular instructions on any obvious difficulties, given. A supply of abdominal belts and bandages for varicose veins would be available for sale at cost price. Patients found to have serious symptoms would be referred to a private practitioner; "no responsibility should be undertaken at the centre for the continuous treatment of serious illness."

Three sets of records are to be kept, thus:

A. Mother.
Name..... Age..... Address.....
Patient of .....
Date of first attendance.....
Date of expected birth .....
Occupation { Present ..... / Before marriage .....
Occupation of husband .....
Former pregnancies (including miscarriages) 1st ..... 4th..... 2nd ..... 5th..... 3rd ..... 6th.....
(State in each case whether the child is still living, and if not, cause of death.)
Previous medical history of patient .....
Present health (teeth, constipation, digestion, obstetrical, etc.) .....
Adequacy of food .....
Arrangements for confinement:
Present condition (doctor's note) .....
Treatment recommended .....
General notes .....
Dates and notes of subsequent attendances (*on back page*).

When the baby's turn comes to attend the centre it is natural that it should be the chief focus of attention. "Commonly, it will be desirable to secure that each infant attending the centre is seen by the doctor at least every four or six weeks. These consultations should be arranged more frequently, if the health visitor in the intervals finds that the infant is not progressing favourably. After the early months of life less frequent attendance will be needed, but the consultations should suffice to secure early recognition of rickets, etc. After the child has reached the age of 2 or 3 years, efforts should be made to secure a medical examination at quarterly or half-yearly intervals, until the child is entered on a school register." Record of the state of the infant is to be kept, thus:

B. Infant.
Name..... Date of first attendance.....
Address .....
Date of birth..... Maturity.....
Weight at birth .....
Health prior to attendance .....
Method of feeding.....
Digestion and bowels .....
Sleeping .....
Clothing .....
Bathing .....
Open air .....
Present state and weight .....
Doctor's notes (including nutrition) .....
Dates and notes of subsequent attendances (*on back page*).

Besides these records of the mother and child there is to be a record kept of the visits to the home, thus:

C. Home Conditions.
Occupants of house..... Adults..... Under 15.....
Number of rooms and size .....
Sanitary conditions .....
Ventilation .....
Light .....
Repair.....
Dampness, etc. .....
Cleanliness .....
Refuse receptacles.....
Social conditions and habits .....
Dates and notes of revisits (*on back page*).

So much for the general scope of the work. There remains to discover the medical arrangements.

At the end of Dr. Newsholme's report we find the following:

> The value of a centre depends chiefly on the medical advice given in it. The late Professor Budin, the distinguished founder of infant consultations, said: "An infant consultation is worth precisely as much as the presiding physician." This is even more true for the antenatal work of the centre.

The medical arrangements for the centres are left entirely in the hands of the local authority:

> Each local authority opening a centre will decide the best arrangement for medical service. An officer of the local authority may undertake this. The arrangement made should, so far as practicable, be one which will receive the general approval of local medical practitioners. This may sometimes be secured by appointing a practitioner not practising in the district. It is less satisfactory to have a rota of doctors. The last-named arrangement should not be entertained unless it is provided that the same doctor will attend at consecutive consultations for not less than six months.

With regard to the cost, the memorandum assumes that the health visitors will be officers of the sanitary authority, so that their salaries need not be reckoned as part of the working expenses of the centre, which would comprise "the doctor's salary, rent, rates, taxes, lighting, heating, caretaking, and a few minor items, including drugs and medical appliances." The Local Government Board will pay 50 per cent. of the amount spent on approved expenditure for the above purposes, but it is thought that in many instances the centre can be conducted on premises used for other purposes, so that no rent need be paid.

(*To be continued.*)

SOME years ago the New York Department of Health established a number of clinics for school children suffering from diseased tonsils and adenoids. Nearly one-third of all the operations on school children for these conditions in the city during the past three years have been performed in them. It is now considered that the dispensaries and hospitals should take this work in hand. The Associated Out-patient Clinics have, we learn from the *New York Medical Journal*, recently called attention to the need of suitable provision for dealing with children suffering from these affections, and the State Charities Aid Association and the Public Health Committee of the New York Academy of Medicine have expressed the opinion that all adenoid and tonsil operations on children should be done under general anaesthesia, and that hospitals where such operations are performed should be equipped to keep their patients in the wards for at least eighteen to twenty-four hours after operation.

MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

EXPERIENCE OF THE NEW LIGHTING REGULATIONS.

THE restrictions introduced in January by the Home Office Order concerning lights on motor cars form the subject of complaints by many doctors, on the ground that these new regulations make it impossible for them to drive on dark country roads, with their lighting equipment masked in accordance with the new regulations. It will be recalled that the Medical Secretary of the British Medical Association wrote, on December 31st, 1915, to the Home Office stating that a number of letters had been received by the Association from practitioners in rural areas pointing out the inconveniences and dangers which might arise from the new Order that has come into force this year, and asking for some relaxation of it to be made as regards the cars of doctors when in use for professional purposes. The official reply claimed that in the framing of the new regulations the needs of medical practitioners who had to travel by road at night had been specially had in mind, that the new Order permits the use on country roads of sidelights giving a brighter light than has been allowed in many areas under the existing orders, and will be found to allow sufficient light for driving at ordinary speeds, even on narrow and winding roads; and concluded with an expression of the Secretary of State's regret that he could not authorize any general exceptions from the provisions of the Order. This correspondence was published in the SUPPLEMENT to the JOURNAL on January 15th. Subsequently a question was asked by Mr. Perkins in the House of Commons on January 19th. In commenting on it editorially in the JOURNAL it was remarked that it was understood that experiments had shown that, by suitable alteration of sidelamps, the full amount of light allowed by the Order could be obtained.

FALSE PREMISSES AND REAL DIFFICULTIES.

Now there come complaints from many doctors concerning the new regulations. These objections differ from former medical comment on the subject in this important particular, that they are the result of actual individual experiences of the working of the new regulations. Inasmuch as the sum of the whole is the allegation that the new restrictions are frankly impracticable in many cases, and as there appears to be some doubt as to the manner in which the degree of restriction imposed was arrived at, I ought to make it clear that the authorities did not confine their preliminary experiments to the experience of a single make of very powerful and considerably expensive electric lighting equipment, as appears to be rather widely assumed. Not only was advice, criticism, and suggestion sought from the Royal Automobile Club and the Automobile Association, which is the largest organization of motorists in the world, but the leading lamp makers, including those not concerned with the electric variety, were besides called on to assist. Each placed its technical experts at the disposal of the authorities.

It is necessary to point this out because, if the Order were the result of an experiment with only one variety of an expensive electric lamp, it would be practically equivalent to compelling medical men, in common with other motorists, to scrap their car lighting equipments, and, at heavy expense, to fit something at least as costly as the electric plant wrongly assumed to be the only type tested.

The real difficulty appears to be that medical men in general, like other motorists, have relied hitherto mainly on their headlights for night driving. It is only of recent years that the power of sidelights has been sufficiently increased to render them really serviceable, especially when equipped with discs in accordance with the new regulations affecting wide areas. The oil lamp is admittedly lacking in sufficient power. It is therefore in any case a choice between the acetylene variety and the electrical. Acetylene is the cheaper sort if the car is not already fitted with accumulators, if not a dynamo.

COST AND AVAILABILITY OF ACETYLENE LAMPS.

But the acetylene variety is perhaps not so absolutely steady as the electrical sort on more or less indifferent road surfaces, such as the medical practitioner has to reckon on traversing in these days. The cost to the medical man who has hitherto had only oil lamps is, for example, £5 17s. 6d. for the English-made Lucas "King of the Road" acetylene side lamp, specially designed to comply with the new lighting order, this price including generator and tubing, but not new brackets should the dimensions of the existing ones be unsuitable. Without the generator the cost is £4, the aim of the design being to meet the requirements of motorists whose cars are not electrically lighted. These lamps are fitted with Maugin lens mirror-reflectors and provide a light sufficient for careful night driving. They fit standard flat brackets, can be supplied with frosted glass if so desired, and have a glass diameter of 5 in. That there is a considerable demand for this acetylene lighting is evident by the fact that immediate delivery cannot be given, though sets can be supplied at about a week's notice.

Admittedly the cost involved is a serious item to the country doctor; but it is scarcely comparable in importance to him with the rise of 4d. a gallon for petrol that has occurred this week. Discarded acetylene side lamps of unsuitable patterns are, of course, of no realizable value; but discarded oil lamps are in more demand now than they have been for many years. This is evident by the rush there has been on some of the secondhand dealers for oil lamps for service on the most luxurious types of town cars off which the electric lights have been taken temporarily because of the lighting regulations that are in force in the metropolis itself. For my part, I could not recommend the medical practitioner having oil lamps adapted to acetylene; at least, I have not yet come across anyone who has had absolutely satisfactory experience from this method of procedure. The best thing to do is to sell unsuitable oil lamps to dealers in the metropolis, where there is some use for them.

THE POSITION TO DATE.

As far as the position goes to date it does not appear to be gainsaid that, if suitable electric or acetylene sidelamps are installed, the new regulations are practicable, though not desirable, from the individual driver's point of view. In point of fact, no restriction of lighting could be desirable when considered from the sole aspect of driving as driving. The practical point, from which there can be no getting away, is that during this war, in face of the advent of aërial navigation and of the enemy's enterprise in that connexion, we must all make shift with lighting that is frankly inadequate. The contention that all this insistence on darkness at night is mere "fussiness" and quite unnecessary fails in face of the fact that Paris, hitherto illuminated at night, is henceforth to be kept dark, like London. This has been found necessary in the light of experience of the last Zeppelin raid on the French capital. Likewise, during the last raid on the midlands, through distribution of authorities, one important manufacturing centre was illuminated as usual in a manner that could be seen by aërial navigators for more than thirty miles away, and which gave them exact bearings for attacks on neighbouring centres. Hence the measures subsequently taken to ensure uniformity of town darkness. Therefore the vital question is, How inadequate can we have car lighting? From the military aspect, there ought to be no lighting of vehicles at all; from the civilian one, there ought to be no restriction on the average amount of lighting employed in peace time; from the point of view of the medical man, in common with other motorists who have need to drive at nights in the areas where the new regulations obtain and whose present sidelights are not sufficiently powerful when employed according to regulations, those regulations are equivalent to a cash levy on him of anything from £4 upwards. It is harsh, but there are worse things in war time. Further, unquestionably the new regulations have not been in force sufficiently long to establish evidence of a sufficiently strong and general character to call for any remodelling of them yet. We may have to do so at a later date, but this thing must be given a fair trial. The authorities cannot be blamed justly as imposing a hardship on individual motorists because they refuse to allow them to use old and less powerful lamps in other ways than are laid down for lamps in general in the areas in question.

MAKING EXCEPTIONS SPELLS CONFUSION.

To attempt to make exceptions would only lead to hopeless confusion. Proof of this is furnished by the fact that

there appears to be some variation on the part of local authorities as to points of detail in the interpretation of the new regulations. The first thing to do, therefore, is to collect evidence concerning given points that a case may be made for the Home Office to ssue instructions that shall ensure uniformity of interpretation.

In regard to discs, on application most of the lamp makers supply their customers with these gratis, while the Automobile Association and the Motor Union supply specially prepared lamp-dimming discs alike to members and to non-members on application—a fact that may be of some service to medical men whether members or not. These discs are equally suitable for use with electric or gas lamps. I know of no means of increasing the power of inadequate oil or acetylene lamps not up to the standard of power allowed by the Home Office regulations; nor do I know of anything material yet being done by the industry towards evolving means of so improving inadequate sets in current use.

It has been alleged, apart altogether from the matter of cost, that new acetylene lights, specially designed in the light of the regulations, cannot be obtained in any case; but I have given above an example of a type that could be got at a week's notice at the time I inquired concerning the point, which was Tuesday of this week. Thus the unavoidable delay cannot be described as of unreasonable or impracticable duration.

THE RISE IN THE PRICE OF PETROL.

The sudden and practically all-round rise of 4d. a gallon in the price of petrol is a very serious thing for the medical profession, because it is an increase of a character on which the doctor can get no rebate on professional grounds such as he receives in respect of the Government duty on motor spirit. Moreover, even in cases where supplies are contracted over a period of a year or more the contracts that have been made recently all stipulate that the price of the fuel shall vary according to the price obtaining at the time at which each delivery of it is given.

It will be recalled that last autumn, when Mr. McKenna introduced his supplementary Budget embracing increased petrol dues, the wholesale firms thereupon advanced the retail price of fuel twopence a gallon more than the total amount of the increased duties, an act which called forth much criticism. A fortnight ago the proprietors of Shell spirit—who have imported somewhat less fuel this year than before because of the temporary cutting off of their supplies from Roumania, and passing difficulties with such of their supplies as derived from Mexico—issued a warning as to the need of every one to economize the use of petrol to the utmost, and hinted that there might be a shortage. The chief rival concern—the proprietors of Pratt's spirit—thereupon announced that there was no shortage as far as they were concerned. Yet a week ago the first intimation of the rise of fourpence in the retail price of fuel came from the group which announced there was no shortage, and the week-end passed without any announcement as to a corresponding advance in price on the part of the firm which had first issued a warning as to possible shortage, and had thereupon been accused of being panicky! Of course, the price of all petrol is going up in accordance with this fresh advance. It is an open secret that the tank steamers in which it is brought to these shores are needed more than ever to convey supplies of fuel for use in the various theatres of war, which are increasing in number so appreciably. Further, the big reduction in the amount of so-called pleasure motoring in these islands and the very appreciable percentage of cars that have been laid aside altogether this year means that the retail trade in petrol will tend to shrink all the time.

AN ANTICIPATORY MEASURE.

It has been alleged that it does not pay the wholesale distributors to sell petrol through the retail trade in this country nowadays. It should be pointed out, incidentally, that after the rise in the price of fuel last autumn the retail distributors, who were then receiving no more profit per gallon than in the days when petrol cost half as much, made an organized protest and received a concession, which also acknowledged a principle to the effect that the higher the price of petrol the more was to be their profit per gallon. Thus every time the Government increases the duty on petrol we are to look for the wholesaler to put on an increase of his own under some excuse or other, and for the retailer also to have his proportion of the increase—three increases for and in one. Where is it to end? Obviously the future use of petrol appears as a competition in which all but the very rich will fail to continue. The few will be paying prices which will presumably yield as much profit to the trade as was derivable for the much greater quantities of petrol sold when professional men and the public were collectively consuming much more than they are to-day.

Another Budget is due in a month or six weeks, and it will certainly concern the question of imports. In its own interests the Government should see to it that the price of fuel is no longer raised to the consumer, especially of the professional class, other than by Government duty. Thanks to the British fleet, during the war the seas have been open. We have received better motor fuel supplies even than the good ones we had before the campaign commenced. The number of tank steamers in the world has been increased, and the maximum extra duty the Government has imposed in respect of petrol is 3d. a gallon, yet the price of that commodity to the general public has risen 9d. a gallon, which is an additional 6d., and it does not find its way into the Exchequer! The Government should take steps to protect itself and the public, for the importation of petrol yields a substantial revenue. Possibly the present increase in price may be due in measure to an anticipation that the Government may fix a limit of the extent to which the price can be advanced. The present figure, of course, constitutes a record in the story of the motor movement. The amount of the advance made this week in the price to the consumer can scarcely cost a medical man less than £5 a year. It will cost the majority at least twice as much.

As we go to press the Asiatic Petroleum Company, Ltd., has issued a circular to its clients, in the course of which it is pointed out that of the motor spirit requirements of His Majesty's forces the company is supplying five times as much as the whole of its competitors put together. In spite of the great and constantly increasing claims upon the firm's resources, it has determined to maintain unchanged the prices at which it has been selling Shell motor spirit to the public. It will be its constant endeavour to secure that garages shall receive at least one-third of the quantity of spirit which they have been accustomed to receive from the firm and at the old prices, which enables the retailer to sell to consumers Shell I at 2s. 2d. a gallon, Shell II at 2s. 1d. a gallon, and Crown spirit at 2s. a gallon. Obviously, however, these curtailed supplies cannot suffice for all the requirements of medical men and the public, and therefore the majority of motorists will undoubtedly have to pay the higher prices which have already been instituted in the case of other brands of motor spirit.

APPLICATION BY THE ASSOCIATION TO THE BOARD OF TRADE.

In view of the seriousness to many members of the medical profession, especially those in country districts who have to make long journeys, of the rapid increase in the price of petrol, the following letter has been addressed to the Board of Trade:

February 3rd.

Sir,—On January 22nd last I wrote asking whether the medical profession could have some assurance that no obstruction would be put in the way of their buying petrol. To that letter I have up to the present merely received an acknowledgement. A new development has occurred. I am informed this morning that petrol has gone up 4d. per gallon. This is an extremely serious thing for members of the medical profession, most of whom are engaged on work which may accurately be described as national work, for probably more than half of them are now helping to carry on the practices of men who have accepted military service, while in addition many of them are engaged on part time military service. To these men, and particularly men in country practices, an additional 4d. per gallon is a very serious tax, and I am instructed to ask whether some arrangement could not be made whereby medical men could be allowed to obtain petrol on cheaper terms.

The Association is emboldened to make this request because it believes that the recent rapid increase in the price of petrol is due, not to ordinary commercial reasons but to the fact that the Government is anxious to restrict the use of petrol for purposes other than necessary work. If this is so, the Association feels that the medical profession has a claim which is only less justifiable than that of the military authorities. The Association would be very grateful if you could give it at an early date some assurance that members of the medical profession will be given special facilities to obtain petrol for the purposes of carrying on their practices at a special price, and thus relieve the minds of the profession on a point which is causing them considerable anxiety.

I am, yours faithfully,

ALFRED COX,
Medical Secretary

The Secretary, Board of Trade.

British Medical Journal.

SATURDAY, FEBRUARY 12TH, 1916.

TRENCH FEVER.

INCAPABLE of learning by experience, the opponents of antityphoid inoculation are still carrying on their agitation against that invaluable method of protecting our troops abroad. One of their less creditable methods of attack has been to insinuate that perhaps the military medical authorities hide cases of enteric fever by falsely returning them under other names. This, at any rate, was the interpretation placed by the Under Secretary of State for War upon a question asked in Parliament on January 20th by Mr. Will Thorne, who wished to know whether "cases bearing the name of paratyphoid fever, trench fever, pyrexia, and other pseudonyms of enteric fever were included in the totals" given for enteric fever.

It is, perhaps, too much to expect that members of Parliament should follow closely the rapid progress of scientific medicine, but they ought surely to be on their guard against falling into such a trap as this and being made a means of not only diffusing information manifestly incorrect but of spreading an odious insinuation. The great value of antityphoid inoculation has been shown again and again—most recently in a reply by Mr. Tennant to Mr. Thorne in the House of Commons on January 10th—and the fact is so firmly established in this and in other countries as to require no further emphasizing here. Moreover, any one who has taken an intelligent interest in the statistics of sickness in the British army in Flanders, not to mention India, ought surely to have been aware that the disease called paratyphoid fever is distinct from typhoid fever, and that an attack of one does not protect from the other, so that inoculation for the one could not be expected to prevent the other.

With regard to trench fever, however, the belief that it is a form of typhoid has been until quite lately more difficult to combat, because it is only now that the identity of trench fever as a separate disease has been established. By a coincidence, at the very time when Mr. Thorne was asking his question the paper published in this issue by McNee, Renshaw, and Brunt, officers serving in the R.A.M.C. in France, was on its way to us, for it came into our hands on January 25th. Their investigation shows that trench fever is a distinct specific fever of relapsing type not due to any virus previously known. The relapses may be one or several in number; in either case the characteristic symptoms are headache and pain in the legs and the small of the back.

Trench fever, they find, may be transmitted to others by intravenous or intramuscular injections of the blood as a whole, but not by the plasma or serum alone, whether this be filtered or not. These observations, taken together, prove that the virus is not a "filter passer," and also that it is probably contained within the leucocytes or red blood cells themselves. Not being a "filter passer," it seemed reasonable to expect that the germ, whatever it might be, would be of sufficient size to be detected microscopically, but, though the authors have examined many blood films at all stages of the disease, no parasite of any sort has so far been detected. Punctate basophilia in the red cells is the only abnormal change that has been noted in the cases. The present position with regard to trench fever is, then, in some respects analogous to that with regard to typhus, as recent researches have shown that the virus in this instance also is not a filter passer, and that the injection of blood will produce the disease in monkeys. From time to time different bacilli have been claimed to be the cause of typhus, but so far none has been generally accepted. It is interesting, however, to note that both typhus and relapsing fever are spread by lice, and it is possible that trench fever is another louse-borne disease. The fact that the disease has occurred only among men who have actually lived in or near the trenches or men constantly in contact with sick and wounded men from the firing line—that is to say, men of the Royal Army Medical Corps—is suggestive.

It is difficult to see how the virus of the disease can get from the blood of one man to another unless it is carried by an insect. Further research might include the possibility of the germ existing in the saliva, urine, and other excretions, and we have no doubt that in the course of the investigation other means of trying to cultivate it than those apparently hitherto employed will be tried; it is possible that it may be an organism that does not grow in bile salt broth. Some protozoa will live and thrive in the water of condensation of haemoglobin agar, and delicate bacteria will grow and multiply on its surface readily as well.

It is clear that the study of this interesting disease has been very difficult, as has been the case with others in which no definite organism can be found by ordinary bacteriological methods, and great credit is due to Captain McNee and his colleague for the great amount of light they have thrown upon an intricate problem. It is a great advance that, as is pointed out by Colonel Sir Wilmot Herringham in a note prefacing the article, trench fever can now be defined and isolated from a mass of cases of obscure fevers.

No doubt until clinical suspicions were aroused cases were confounded, not wholly without reason, with such protean disorders or symptoms as influenza, neuritis, myalgia, or even rheumatic fever. It is wholly distinct from enteric fever, though naturally, as Sir Wilmot Herringham justly says, that disease should be suspected until its presence has been disproved where armies in the field are concerned. The fever is still occurring among the British forces in France; and as it is a fruitful source of invaliding, the results of further investigations into its cause and mode of transmission will be awaited with interest.

"PATENT MEDICINES."

THE Medico-Political Committee reported to the meeting of the Council of the British Medical Association on January 26th that it had addressed a communication to Sir Henry Norman, M.P., Chairman of the Select Committee on Patent Medicines, conveying the resolution by which the Annual Representative Meeting, 1915, placed on record its satisfaction with the recommendations of his committee, and instructed the Council, as soon as it considered the time opportune, to take all necessary steps to press for legislation on the lines of the report. The letter went on to express the hope that when normal times returned the Association might have his support and influence in urging on

the attention of Parliament the very serious evils which the report disclosed, and the necessity for dealing with them drastically on the lines suggested therein. Sir Henry Norman, in his reply, said that when a return to normal times arrived he would be wholly at the service of the Association for any further help it was in his power to give. The Council of the British Medical Association, in its annual report[1] last year to the Representative Meeting, expressed the opinion that a report so radical in its scope and so satisfactory in its nature, coming from such a source as a Select Committee of the House of Commons, thoroughly justified the action the Association had taken in regard to secret remedies, but added that the present was obviously not the time at which the Government could be pressed in regard to the matter. It considered that the first favourable opportunity should be taken, and the Medico-Political Committee is anxious that medical practitioners should obtain the report and study it carefully, as the question will require energetic treatment at the earliest opportunity. Reports of the evidence, taken by the Committee during its thirty-three public sittings, were published regularly in the BRITISH MEDICAL JOURNAL, beginning on May 18th, 1912 (p. 1140), and terminating on June 21st, 1913 (p. 328), the Committee having closed its public sessions on June 12th, 1913. The report itself costs 3d.; the large blue book containing both the report and the full text of the evidence costs 6s. 7d. Either can be obtained through any bookseller.[2]

The findings of the Committee and its recommendations were published in full in the BRITISH MEDICAL JOURNAL of August 29th, 1914 (p. 404), and have been discussed on several occasions since.[3] The general effect of the findings was expressed in two of them, where it is said that "the traffic in secret remedies, except as regards scheduled poisons and the grosser forms of impropriety, is practically uncontrolled in this country," and it is added that this is an intolerable state of things, to remedy which new legislation is urgently needed in the public interest. The Committee outlined the legislation it considered necessary. One of its recommendations was that in the case of every medicated wine and every proprietary remedy containing more alcohol than that required for pharmaceutical purposes, the law should require the proportion of alcohol contained in it to be stated on the label.

Another was that the advertisement and sale (except by a doctor's order) of medicines purporting to cure certain diseases should be prohibited. Among the diseases to which it was considered this should apply were cancer, consumption, diabetes, paralysis, locomotor ataxy, epilepsy, Bright's disease, and rupture (without operation or appliance). The Committee recommended that Parliament should make it illegal to change the composition of a remedy without notifying the Government department proposed to be set up of the proposed change, and that fancy names for recognized drugs should be subjected to regulation. It also suggested legislation which would make the practice of what is called "following-up" illegal. Under this system, which we believe originated in America, when once the vendor gets into communication with some person, he or she is plied with a series of letters inviting correspondence, and probably, eventually, recommending other remedies for other disorders from which the person addressed may be induced to think he or she is suffering. Many instances of this plan will be found in the two volumes, *Secret Remedies* and *More Secret Remedies*, published by the Association.[4]

The Committee also recommended that it should be made illegal to use the name of a fictitious person or a fictitious testimonial in connexion with a remedy, or to publish a recommendation of a secret remedy by a medical practitioner unless his or her full name, address, and qualifications were given.

The State department for dealing with secret remedies proposed to be set up should, the Committee thought, be controlled in the meanwhile by the Local Government Board. One of its duties, it was recommended, should be to keep a register of manufacturers, proprietors and importers of patent, secret, and proprietary remedies, who should be required to obtain a certificate. Before granting this certificate the department would require the applicant to supply it, among other information, with a complete statement of the ingredients and proportions of the same in every such remedy. The Committee also recommended the establishment of a special court or commission to be set in motion by the President of the Local Government Board, which would have power to permit or prohibit in the public interest, or on the ground of non-compliance with the law, the sale and advertisement of any patent, secret, or proprietary remedy or appliance.

With regard to the amendment of existing legislation the Committee recommended that the Indecent Advertisements Act should be amended on the lines of Lord Braye's bill, and that the Stamp Acts should be consolidated and amended to remove the numerous existing anomalies and unreasonable exceptions. It did not recommend the abolition of the patent medicine stamp duty, and this seems to be the only part of the report which has hitherto had any effect on the Treasury. It will be remembered that in the Budget introduced on September 21st last the Chancellor of the Exchequer proposed to double the patent medicine duty of 1½d. in the shilling, and expected an addition to the revenue from this source in a full year of £250,000. The suggestion greatly amused the House of Commons, but as we observed on October 2nd last, it may well be asked whether it is statesmanlike to palter in this way with an evil which must cost the country in loss of health and life tens of millions a year.

There can be no doubt that the recommendations of the report are worthy of the very serious consideration of the profession, so that it may be prepared to express definite opinions upon all of them when the time comes for Parliament to deal with any proposals for legislation which it may be thought proper to put forward. The proceedings of the Select Committee themselves afford ample proof that restrictive legislation will be met by strong opposition from certain quarters—certainly from the proprietors of secret remedies, possibly also from the owners of some newspapers. It is conceivable that the proprietors might not have any strong objection to the establishment of a Government department to which they would be required to disclose the ingredients of their preparations, and from which they might hope to receive a certificate permitting them to trade. We could even imagine that they would welcome legislation which might seem to give to their trade

[1] SUPPLEMENT to the BRITISH MEDICAL JOURNAL, May 8th, 1915, p. 185.

[2] Report from the Select Committee on Patent Medicines (ordered by the House of Commons to be printed, August 4th, 1914). Price 3d. Report from the Select Committee on Patent Medicines, together with the Proceedings of the Committee, Minutes of Evidence, and Appendices. (Price 6s 7d.) Either can be purchased, directly or through any bookseller, from Wyman and Sons (London), H.M. Stationery Office (Edinburgh), E. Ponsonby (Dublin).

[3] See vol. i, 1914, pp. 479 and 548.

[4] London: British Medical Association. Price 1s. each, post free 1s. 3d. each.

more definite public recognition than through the operation of the Stamp Acts it already enjoys. It is very questionable indeed whether such legislation would be of any value unless the same Act contained a clause on the lines outlined by the Committee forbidding the advertisement and sale of secret medicines purporting to cure such diseases as cancer, consumption, and the others enumerated. We should also regard the provisions suggested as to the regulation of the trade in medicated wines as of great importance from several points of view, but it will be observed that the Committee does not go beyond recommending a provision requiring the proportion of alcohol contained in any such wine to be stated on the label. Legislation prohibiting the publication of advertisements likely to suggest that the medicine sold is an abortifacient, would, if enforced, put an end to a public scandal. The suggestion that the publication of a recommendation of a secret remedy by a medical practitioner should be forbidden by law unless his or her full name, qualifications, and address are given would no doubt have a deterrent effect, but should be extended by making it penal to publish testimonials purporting to be given by medical practitioners long since dead. These are some of the provisions urgently needed, and the Select Committee considered that none of them would inflict injustice upon any patent or proprietary medicine or appliance.

THE INTRODUCTION OF CINCHONA TREES INTO INDIA.

SIR CLEMENTS MARKHAM, who died on January 30th in his 68th year as the result of accidental burns, succeeded in introducing cinchona trees into India after several other attempts had failed. In 1852, the year in which he retired from the Royal Navy, he paid a two years' visit to Peru, and published a book on his travels in 1856. A few years later he again went to Peru at the request of the Secretary of State for India, to superintend arrangements for the collection of cinchona plants to be introduced into India, and we are very glad to have the opportunity of publishing the following interesting note by Sir George Birdwood, M.D., K.C.I.E., relating the story of the arrival of the plants in India and the early stage of the introduction of the cultivation of cinchona into that country. "I have," he writes, "none of the official documents by me for the verification of the following particulars of the introduction by Sir Clements Markham of the chinchona trees of South America into India, but you may rely on their accuracy as a general statement, as I happened to be the official who, under the direction of Sir George Russell Clerk—'George Clerk of Umballa'—received Sir Clements, and his large nursery of young chinchonas, on his arrival in Bombay in 1860, and assisted him in taking them on to the Nilghiri Hills in Southern India, where he placed them in charge of Mr. MacIvor, one of the most skilful arboriculturists then in India, to whom Sir Clements also entrusted the subsequent supplies of young chinchonas collected under his instructions in South America by Messrs. Spruce and Pritchet. They all flourished wonderfully under MacIvor, who was able within a few weeks to send out stocks and seeds for cultivation in Ceylon and Sikkim. Earlier attempts had been made by Boyle and Weddell and Falconer to naturalize the chinchonas in India, but all had failed; and it was Sir Clements Markham's choice of the species of chinchonas (in the which he was advised by Sir Joseph Hooker) and of the Nilghiris for their new habitation (in which he was encouraged by Sir George Clerk while still Permanent Under Secretary of State for India, 1858–60) that secured the success of his arduous adventure—one of the greatest of the blessings conferred by 'the British Raj' on the malaria-stricken peoples of India. The chinchonas grown by MacIvor were *Chinchona Calisaya*, *C. micrantha*, *C. lancifolia*, *C. nitida*, *C. officinalis*, *C. Pahudiana*, *C. peruviana*, and *C. succirubra*. *C. Calisaya* has, I believe, proved the most successful on the Nilghiris."

ALCOHOL AND THE SOLDIER.

THE Academy of Medicine in Paris has drawn up an appeal to soldiers warning them with regard to alcoholic beverages. The preamble and the first three paragraphs were adopted without discussion, but the fourth paragraph, in which a distinction is drawn between distilled and fermented beverages, was discussed at some length. As originally proposed, the paragraph contained after "aids digestion" the words "This is true"; these were struck out. The original draft did not contain the words in the second part of this paragraph as to the *petit verre* after meals, and originally stated that fermented beverages might be useful. The following is a translation of the text of the leaflet:

Soldiers—Beware of Alcohol.

Those who, like you, are exposed to exhausting labour, to perilous enterprises, and to strong emotions, are ever inclined to look to alcohol as a stimulant and a comforter, and to seek for it in the tavern as a distraction from the monotony of cantonment and garrison life.

It is therefore well that you should know what use you may make of alcohol without impairing your health.

Certain errors about alcohol are widespread.

1. It is said to *give strength*. This is not exact. The truth is, it gives a false spurt of short duration, but a grave diminution of strength never fails to follow this excitement. Thus alcohol takes away more strength than it gives.

2. It is also said that alcohol *gives warmth*. This is true for a few minutes, but the feeling of warmth which spreads over the limbs after a nip of brandy is delusive and is soon followed by a lessening of warmth and strength. Men who take nips are far more subject to chills and to diseases to which men at the front are liable.

3. It is further asserted that in the form of a "*pick-me-up*" alcohol stimulates the appetite. This is quite wrong. It would be difficult to produce any man whose appetite had ever been really stimulated by a "pick-me-up." These *apéritifs*, habitually taken, lead without fail to disease of the stomach, liver, and mind.

4. Lastly, it is maintained that alcohol *taken during meals* as wine, beer, or cider *aids digestion*. An important distinction must be drawn between "distilled" liquors like brandy and "fermented" liquors such as wine, cider, and beer. Alcohol is altogether noxious. The *petit verre* after meals should only be taken on rare occasions. Fermented liquors, on the other hand, may be drunk subject to two conditions. They must be consumed in great moderation, which, as regards wine, should never exceed 1 litre (a pint and three-quarters) in twenty-four hours and *only at meals*.

THERAPEUTICS OF RADIUM.

THE first report of the Manchester and District Radium Institute, dealing with the cases treated during 1915, is marked by great moderation The Institute has its head quarters in a series of rooms in the basement of one of the buildings of the Royal Infirmary, and is admirably adapted for the work it has to do. It is a complete department, with all the usual waiting, dressing, and consulting rooms, and separate cubicles for the actual treatment. At present the physical laboratory is small, but it is probable that a more suitable laboratory, more adequately equipped, will be added. A large quantity of radium is at the disposal of the staff, and as many of the cases have to be treated at other hospitals than the infirmary, a considerable part is used for the purpose of collecting and using the emanation. The director, Dr. Burrows, points out that the treatment of cancer in its various forms has been so far the chief work of the department, and he wisely warns the general public not to take an exaggerated view of what radium can accomplish in this direction. In dealing with this aspect of the work it is worth while to lay stress upon the point that only inoperable cases of malignant disease are accepted for this treatment. When we consider and criticize the treatment from this

limited point of view, it is obvious that cures must of necessity be few and far between. The time may come when it will be justifiable to undertake the radium treatment of malignant disease in its earlier stages, that is, before it has become inoperable, but this time has not come yet. This may possibly be due to the facts that exact methods of application, exact dosage, etc., are as yet imperfectly understood. When we consider the occasional unexpected and extraordinary effects of radium in an apparently hopeless case, it is impossible to shut our eyes to the latent possibilities of both radium and *x* rays when the measurement of dosage, and the *rationale* of application, in the future, are better understood. The Manchester clinic has advanced the method of treatment by emanation, and the burying, by means of hollow needles, the emanation in the centre of tumours. This method, introduced by Stevenson and Joly, is, at the present time, that which seems to promise the best results. Dr. Burrows has a modified needle, in which the solid-pointed end, and the eyeleted end, can be screwed on and off. This means that the central portion containing the emanation can be prepared, and the two ends then fitted on to it for introduction into growths. It is of interest to note that in the general summing up of the methods of technique stress is laid on the point that, in introducing the tubes into a growth, just as much care should be adopted as to aseptic technique as in general surgery. We cordially agree with this, but we do not agree with the suggestion that large incisions should be made through the skin for the same purpose. The sound principle seems to be to make the smallest possible incisions, as it is of importance not to open up lymph channels and so encourage general dissemination of the growth. The general observations dealing with filtration and dosage are useful, and the caution against large dosage with long exposures and slight filtration, liable as it is to lead to sloughing and necrosis of tissues, is not out of place. Special attention should be called to the remarks on the treatment of the recurrent nodules after an operation for cancer of the breast; great care must be taken not only in the burying of radium, but also in its external application; a permanent ulcer is easily produced. The report states that the treatment of carcinoma of the cervix uteri by radium has, on the whole, given good results. The value of this statement entirely depends upon what is understood by the phrase "good results." Temporary amelioration in the local condition, diminution of haemorrhages, cessation of putrid discharge, often mean that the patient's general condition is for the time markedly improved, and in this respect the immediate result is good, but the term "good result" must not be taken to indicate that anything in the nature of cure is likely to result. Many surgeons, after a trial of radium in these cases, are of opinion that equally good temporary results can be brought about by scraping and the use of the cautery. During the year 519 cases were dealt with in the department, and the concluding portion of the report gives tables of the cases and the results obtained.

BOVINE TUBERCULOSIS IN MAN.

A REPORT on a continuation of the research in the pathological laboratory of the Local Government Board into the types of tubercle bacilli occurring in tuberculous disease of bones and joints has been published by Drs. A. Eastwood and F. Griffiths in the *Journal of Hygiene*.[1] It deals altogether with specimens from 313 cases, but in 5, though there was disease of bone or joint, the material was obtained from other sites, and these have been rejected in compiling the statistics, as have also 47 cases in which the results were negative. This left 261, and in 55 of these, or 21.1 per cent., the bacilli were of the bovine type. Of the 261 patients, 155 were under 10 years of age, and the percentage of the bovine type in them was 29.0. Under 5 years of age it was practically the same (29.8). In the 106 cases over 10 the percentage of the bovine type was 9.4. Only 3 were over 16, the ages being in two cases 17 years, and in one 22. In 10 cases out of the 261, the bacilli were atypical, and their source cannot at present be stated. The medical officer to the Local Government Board, in a brief comment on this report (published in his report to the President), observed that the investigation affords evidence that in the areas from which the cases were derived tuberculous bone and joint disease in human beings is more frequently caused by the human than by the bovine type, although the latter is responsible for an important percentage—a fact which, it is admitted, affords additional proof that cow's milk is responsible for producing much tuberculosis in man. The parts of the country from which the specimens were derived are not anywhere stated, but it is to be presumed that they were all from England. In the investigation reported by Eastwood and Stanley Griffiths to the Local Government Board in 1914 the proportion of the bovine to the human type was 19 to 93, so that the percentage in the new series is appreciably higher. It will be remembered that in a similar study carried out in Edinburgh Dr. John Fraser[2] found the bovine bacillus in 41 out of a total of 70 cases investigated, the human bacillus in 26, and both types in 3. The cases he examined were all under 12 years of age, and he made the very significant observation that of 28 children, all 3 years old or under, the bovine organism was present in 23, and the human in 5 only. He also brought out a most interesting point with regard to the family history. In 21 instances there was a definite history of pulmonary tuberculosis in some member of the family in which the child lived, and in 15 of these children the type of bacillus present was the human. In 52 cases there was definitely no family history, and in 43 of these children the bacilli was of the bovine type. Dr. Philp Mitchell,[3] also working in Edinburgh, found that in the tuberculous cervical glands of 72 children the bovine type of bacillus was present in 65, and the human in 7 only; in 27 children under 3 years of age the bovine type occurred in 25, and the human only in 2. In a subsidiary investigation on the type of tubercle bacilli found in tuberculosis of the genito-urinary tract Eastwood and Griffiths found the human type in 14 and the bovine type in 3. These three cases were affections of the kidney in persons aged respectively 25, 19, and 20 years.

[1] January, 1916.

THE PROTECTION OF THE *X*-RAY OPERATOR.

AT the February meeting of the Röntgen Society a discussion was opened (to be continued at the March meeting) on the subject of the protection of the *x*-ray operator. Dr. Sidney Russ pointed out that while *x*-ray dangers were becoming less formidable owing to the widening knowledge of them, there was still a good deal of uncertainty because the modern outfit furnished perhaps fifty times more energy than the outfit of ten years ago. It would be a great advantage if effective protection could be obtained without resort to legislation, for of all the methods available for ensuring it legislation was likely to be the least popular and the least convenient. In the course of the discussion Dr. G. H. Rodman suggested that the General Medical Council be asked to include *x* rays in the medical curriculum, so that before qualification the student should be as fully acquainted with the dangers of the *x*-ray tube as he was with the dangers of strychnine. Sir James Mackenzie Davidson mentioned that while doing screen work he placed a thick lead barrier round the tube; the observer, standing completely behind this barrier, was enabled to see the screen image reflected in a fine plane glass mirror. Dr. Fred. Bailey, of Brighton, said that it was his practice

[2] BRITISH MEDICAL JOURNAL, April 12th, 1913, ii, 760.
[3] Ibid., January 17th, 1914, p. 125.

to have a large screen running on castors, the upper third of it being of lead glass. His tube was enclosed in a large lead glass bulb, and under such conditions as these it did not seem probable that any x rays were directly received by the operator. There remained the ionization of the air, which was quite possibly a source of danger, and Dr. Reginald Morton confessed that after an afternoon spent in x-raying a number of cases, he suffered from a severe sense of fatigue. The ventilation of the room did not appear to make matters much better. Dr. W. Harwood Nutt said that the effects of atmospheric ionization might be prevented by ventilating the room efficiently, having not one but two ventilators, so that a constant current of air was passing from entrance to exit. Some x-ray workers were returning from the seat of war with very bad ulcers on their arms and hands, and for his own part he did not believe that any man could protect himself adequately unless the tube itself, in distinction from the worker, were shielded. Dr. N. S. Finzi gave an interesting experience which seemed to show the negligible character of stray radiations spread over a period. One of his assistants had placed an enclosed Sabouraud pastille on the front of his apron and another on the back. The pastille in front was found to have turned to the "B" tint after about two weeks' hard work (x-raying every morning and eight afternoons), but the pastille on the back of the apron was still unturned after six weeks, and it did not seem likely that a full dose would be received there within a shorter period than three months. Such a dose, even though continued over a long time, could scarcely do the operator very much harm. Dr. Bailey stated that he had noticed a certain amount of anaemia among persons constantly receiving x-ray treatment, and Dr. Russ said that one of the hidden dangers of x rays was undoubtedly the blood change brought about. In the cases investigated the red cell content was invariably shown to be below the normal, and in many cases the white cell content also. The lymphocytes were in almost every recorded case very greatly reduced. As to a cure for x-ray dermatitis, Dr. Rodman said that his own trouble, including split nail, had practically cleared up after he had followed the plan of avoiding the x-ray tube as much as possible and exposing himself to sunlight and fresh air.

MEDICAL WORK OF THE LOCAL GOVERNMENT BOARD

THE report of the Medical Officer to the Local Government Board for 1914–15 is a much smaller volume than usual. The first part is devoted to an account of the steps taken by the Board some time after the outbreak of the war to meet the emergencies which had arisen. During the autumn of 1914 and in the first three months of 1915 twelve medical inspectors were engaged almost exclusively in visiting districts occupied by troops. They discussed local difficulties, and in numerous instances more complete co-operation of civil and military authorities than had previously been practicable was secured. A similar system of co-operation between the naval medical authorities and the local authorities was arranged as far as naval camps, dépôts, and billets on shore were concerned. From August onwards a system of internotification of infectious diseases was arranged between civil and military medical officers. In the following month the War Office issued for confidential use a weekly statement as to various infectious diseases among the troops in different commands. In most centres military disinfecting apparatus was provided, but the civil authorities also carried out disinfection on a large scale for the troops. Another task undertaken by the Board was the protection of food supplies, the Board's offer to the War Office of the loan of inspectors of foods being accepted. Steps were taken to ascertain the place of preparation of food materials, and the M.O.H. of each district was asked to keep the preparation of these foods under close observation. During the year under report there was no large outbreak of enteric fever, and though there was an enormous rise in the number of men under arms, there was no corresponding rise in the incidence of this disease. Of other infectious diseases measles showed a decline from 10,644 deaths in 1913 to 9,144 in 1914. It is a striking fact that this figure was barely exceeded by the deaths in 1914 from smallpox, diphtheria, enteric and scarlet fever combined, the total for these four diseases being 10,450. One of the most interesting features of the report is the section dealing with tuberculosis. It is a most deplorable result of the war that the important schemes for dealing with the many aspects of this disease had not matured when the call for economy and retrenchment had to be obeyed. Before the war six medical inspectors were employed in the tuberculosis service. From August, 1914, the work has approximately occupied the full time of two inspectors. The erection of institutions for the tuberculous has in many cases been deferred. Arrangements, it is stated, have been made for the treatment in residential institutions of uninsured soldiers suffering from tuberculosis, but details are not given. It is said that the notification of non-pulmonary tuberculosis is defective, owing, it is thought, to the failure of medical practitioners always to realize that the notification of this form of tuberculosis may reveal sources of infection and undesirable housing and industrial conditions. The Board asks medical officers of health to communicate with practitioners who fail in this respect. On June 26th, 1915, tuberculosis officers had been appointed in the proportion of one for 145,000 persons in the administrative counties, and one for 110,000 in the county boroughs. By the end of that month about 30 per cent. of the tuberculosis officers had accepted military service, temporary arrangements being made for carrying on the work in their absence. The number of sanatoriums and allied institutions increased from 104 in July, 1914, to 120 in June, 1915; and the number of beds from 5,398 to 6,496. In July, 1914, about 25 per cent. of all the beds in these institutions in this group were provided in institutions belonging to local authorities; in June, 1915, this percentage had risen to 32. It is satisfactory to find that the Board has realized the desirability of treating children and adults separately as far as possible. The drawbacks of mixing children with adults are many and great. The Board has also accepted the view that for the satisfactory conservative treatment of tuberculosis of bones and joints a separate institution is desirable. The importance of making suitable arrangements for education in institutions receiving children of school age is also recognized by the Board, which has decided not to approve any children's institution in which the requirements of the Board of Education with regard to education are not satisfactorily met. The section of the report dealing with the auxiliary scientific investigations is brief. We refer elsewhere to the work done by Drs. Eastwood and Griffiths, but it may be noted here that a comparative study by Dr. Gauvain at the Lord Mayor Treloar Cripples' Home, of the reactions to human and bovine tuberculosis in cases of tuberculous disease of the bones and joints, appears to show that it is not possible to discriminate between infection by the human and bovine type of bacilli by means of the von Pirquet test. To a memorandum by Dr. Newsholme on health visiting and on maternity and child welfare centres we hope to refer on another occasion. One of the appendices contains a voluminous report by Dr. Bruce Low on typhus fever in recent years, giving an account of the incidence of the disease in various countries.

CIVIL HOSPITAL STAFFS OF MILITARY AGE.

A FEW weeks ago we gave some account of a difficulty which had been raised by certain members of the committee of the Worcester Infirmary in accepting an arrangement proposed by the medical staff for carrying on the work of the infirmary during the war. Four members of

the staff and the qualified house-surgeon had joined the R.A.M.C., but the remaining members of the staff had undertaken to carry on the work, arranging that a member of the honorary staff should sleep at the infirmary in rotation for some days. Subsequently the honorary medical staff accepted an offer made by three medical men in the city to give their assistance as required. This did not satisfy some members of the committee who were anxious that the offer made by a fourth doctor should be accepted. The committee by a majority accepted the offer, but the members of the consulting and acting staff subsequently sent a round robin declining to work in the infirmary with any man of military age appointed temporarily to take the place of their colleagues who had joined the army. If we understand aright what happened at a recent meeting, the committee took no definite action on this letter, the medical staff being left to ask for assistance as and when required, but the vice-chairman, Mr. Harris, took the opportunity of making an attack upon the staff, and indeed upon the profession generally. Mr. Harris worked himself up to such a pitch of excitement that he proposed to have the difficulty he anticipated settled under the provisions of the Defence of the Realm Act. This wild suggestion did not commend itself to the committee, but the attitude of mind disclosed is curious, though not very unusual; outbursts of the kind are not by any means all directed against the medical profession. There are quite a number of people who get an obsession of the sort against certain other classes of their fellow citizens. There are some—and they seem to be very numerous just now—who look upon all lawyers as sons of Belial; others who regard clergy of all denominations with particular aversion; and others, again, who can never see a brewer without looking for horns and a tail. It seems to be a phase of the mental state on which the Germans sought to found their now discredited so-called science of *Völker-psychologie*.

EDUCATIONAL UNREST.

THE letter from Sir Philip Magnus, the representative of the University of London in the House of Commons (published in another column), will, we feel sure, attract the attention of all those among our readers who are interested in the development of secondary and higher education in this country. Before the war there was in some influential quarters a tendency to blind admiration of German educational organizations, and a reaction had already begun. It has been greatly accelerated by the revelation, through their conduct in Belgium and other districts overrun, of the low ethical standard which has been produced under the German system. But the choice does not lie between a slavish imitation of Germany and the maintenance unchanged of our own system, in spite of the patent faults disclosed. It is a grievous thing to find young men of high attainments going out into business and politics without any knowledge of natural phenomena and how they may be investigated, explained, and applied to the advancement of knowledge and industry. There can be no reason why this particular fault should not be corrected without destroying the valuable characteristics of English schools and colleges. As the Vice-Chancellor of the University of Leeds said over a year ago, "In the difficult days of social readjustment which will follow the war there will be more need than ever for variety of experiment, for variety of educational tradition, and for variety of responsible initiative." "Freedom," he went on, "from the iron band of State control allows teachers and pupils the training in individual responsibility which develops and fortifies character; and the higher kind of freedom, though indocile to external pressure, realizes itself in willing subordination to the common good." It is, we believe, with some such thoughts in his mind that Sir Philip Magnus appealed to the Prime Minister to take steps now to see that the scheme which the Board of Education has in hand shall be so moulded that it shall not act as an iron band to restrict and deform the natural growth of education in this country.

MILITARY HOSPITALS' JOURNALS.

THE *Craigleith Hospital Chronicle* continues its interesting and amusing way. The issue for February is the fourteenth. Many of the contributors are or have been connected with the 2nd Scottish General Hospital, and the editor is fortunate to have on his staff some person or persons who can draw most effective initial letters and tailpieces. Running through recent numbers is a series of articles entitled "The Story of Some Scottish Regiments," by Dr. J. A. MacDougall. The last two dealt with are the Black Watch and the King's Own Scottish Borderers. The articles are illustrated by drawings of the regimental badges and of the medals and clasps which men of the regiments have been entitled to wear. As was said in an effective little article in a recent number of the *Gazette* of the 3rd London General Hospital, Wandsworth, though men pass away the regiment goes on. The editor of the Wandsworth magazine, like his brother in Edinburgh, is fortunate in having some very excellent artists on his staff, and Mr. Nevinson, by his drawings of the arrival of an ambulance at night, a month or so ago, and of the receiving hall in the issue for February, almost reconciles us to Futurist art. Nobody, from the C.O. to the ward orderly, seems safe from caricature, but it is all very good-natured. Some day sets of these periodicals will be valued curiosities, and already Dr. W. W. Keen, the veteran surgeon of Philadelphia, is collecting them for presentation to the great library of the College of Physicians in that city. It is also hoped to preserve them in the library of the British Medical Association, but the first number of the Wandsworth *Gazette* is missing, and the editor informs us that it is out of print. The same has happened to the first and second numbers of the *Craigleith Hospital Chronicle*. Unfortunately our file of the *Craigleith Hospital Chronicle* is still more incomplete, as all the numbers of the first volumes are missing—in fact, only the ninth, twelfth, thirteenth, and fourteenth numbers are in hand. Any one who has spare numbers which he does not propose to preserve will be doing a good deed by sending them to us for preservation.

CEREBRO-SPINAL FEVER.

IT will be within the recollection of many of our readers that in the course of the outbreak of cerebro-spinal fever among the civil population of Salisbury last winter prophylactic inoculation was employed on a considerable scale by representatives of the Lister Institute working in co-operation with the medical officer of health. A preliminary note on the results was communicated by Dr. Fison, M.O.H. for Salisbury, to the Royal Sanitary Institute, and it appeared that the method had been productive of some decided advantages. In view of the great practical importance of the subject it is very desirable that further work should be undertaken. The authorities of the Lister Institute are anxious to hear from any medical officers of health who may have to devise measures for dealing with local outbreaks of cerebro-spinal meningitis with a view to co-operating with them, as it is not improbable that protective inoculation may prove the solution of a difficult administrative problem. Inquiries should be addressed to the Director, Lister Institute of Preventive Medicine, Chelsea Gardens, S.W.

TWO convoys of tuberculous prisoners—French and German—arrived in Switzerland ten days ago. The Germans coming from Lyons, and numbering 100, were sent to Davos; the French, numbering 101, coming from Constance to Leysin, where they were welcomed by the authorities.

THE WAR.

WAR NEPHRITIS.

(From a Correspondent in Northern France.)

CASES of war nephritis continue to be seen in considerable numbers, but there is no really fresh development to record in connexion with this particular source of wastage. Certain points have, however, been emphasized by the experience of the past six months, and there is also perceptible some degree of change in the general medical attitude towards the prognosis of these cases. After two marked swings in either direction, the pendulum is now stationary and fairly perpendicular.

In civil life acute nephritis occurring in young adults, and independently of any other apparent disorder, is often fatal, and at the best runs a very protracted course, months elapsing before the albumin disappears. On this analogy the initial view taken of war nephritis was grave, but a difference between the two conditions was very soon noted. In case after case the dropsy and albumin disappeared within a fortnight or three weeks, and all direct evidence of kidney mischief vanished rapidly. The belief then arose that war nephritis was a disorder *sui generis*, and not likely to affect permanently the well-being of the individual concerned, or to do away with his military value for more than a month or two at the most.

This was the position of affairs about the date of the appearance of the first note on the subject (July 17th, 1915, p. 109). Present views are somewhat different. It is now thought that the prognosis should be guarded in respect of the ultimate effect of the disorder on the future of any given individual concerned, and that the previous belief as to the comparative unimportance of the disorder from the point of view of military efficiency was mistaken.

It is true that the case-mortality continues to be very low, and it is also true that as soon as the initial anasarca has disappeared—and this, as a rule, is within a fortnight—patients generally regain an appearance of well-being. It is also true that within three or four weeks albumin, casts, and blood cells generally disappear entirely from the urine. But this is not always the case, and sundry reports from home suggest that in certain instances, at any rate, evidence of continued or renewed kidney trouble may be found at a much later date.

As to other points, the experience of the past summer and autumn has confirmed the belief that though exposure may aggravate an existing case, it is not in itself an originating cause. The belief is also confirmed that though a certain number of the patients may be persons in whom the nephritis is merely a recrudescence of a pre-existing disorder, the great majority of cases occur in individuals who have been perfectly healthy in regard to their renal systems and all other respects. Nothing, in short, has occurred to disturb the view that the condition is a new disease in the sense that as a whole its phenomena do not correspond precisely with any symptom-complex previously familiar to clinicians. No pathologist of my acquaintance is disposed to be very confident as to its etiology, or has put forth any view which, from a laboratory standpoint, brings the condition entirely into line with the idiopathic acute nephritis of civil life. Consequently "war nephritis" is about as near as one can get in the way of a specific label for the condition.

Objectively, facial oedema with some elevation of temperature is found to be the most conspicuous phenomenon in early cases; subjectively, headache, aching pains, and especially a feeling of breathlessness.

With these early subjective symptoms a certain degree of bronchial catarrh sometimes coexists, but it is never sufficient to explain the breathlessness mentioned. A history of the latter may be obtained in practically all cases, and it is probably to be attributed to an increase in the acid contents of the blood. No attempt has been made as far as I know to examine the blood from this point of view, but the causative connexion between acidosis and breathlessness is well recognized in renal disease of civil life.

Another feature is an increase in the blood pressure. This has been found to be invariably present when the point has been tested at the hospital in France which has received a large proportion of all these cases, and a series of pressure records shown me by one observer (Captain Abercrombie) indicated that in respect of the systolic maximum a rise up to 200 mm. is by no means rare.

The breathlessness is, however, not an enduring feature, and the blood pressure seems to fall rapidly under the influence of rest in bed and a fluid diet. The same treatment also quickly converts an initial oliguria into polyuria, and the output of albumin and blood soon begins to lessen. The latter is at first usually present in perceptible quantities in the urine, and is always to be found by the microscope. Febrile symptoms usually disappear within ten days or so of their first appearance, and the patients seem to be generally sufficiently recovered to be sent home within three weeks of their arrival at a base hospital—that is to say, within a month of the time they first began to feel unwell.

Meantime, however—that is to say, in the stage of acute illness—comparatively few patients fail to exhibit some of the minor phenomena of uraemia, for example, generalized headache, or sleeplessness, or vomiting, and actual fits are not very uncommon. Nevertheless, right from the beginning I have not heard of more than three or four deaths, and only one of these seems to have been a typical case. In the rest there was evidence of pre-existing renal disorders, and even in the typical case the tendency towards death seems to have been increased by a large pleural effusion of renal origin.

In regard to the etiology of the disorder, there are those who favour the idea of a streptococcal infection, but direct evidence is lacking, and the subacute tonsillar inflammation which is so common in disorders of streptococcal origin figures with comparative rarity in the history of war nephritis. The grounds for holding it to be due to infection by *B. coli* seem even less assured. Association of the condition with intestinal troubles does not appear to be common, and though *B. coli* may be identified in the urine, the frequency with which this occurs seems to diminish with the care taken to exclude from the count cases in which cystitis coexists. Commonly, indeed, the urine is absolutely sterile.

On the whole, therefore, it seems not improbable that definite evidence will one day be forthcoming in support of the belief that the *causa causans* is a germ capable of passing through a filter and at present unrecognized.

Such a conception is already favoured by clinical observation of early cases. The picture that they then present is fairly constant, and the fashion in which they evolve is in keeping with that of various zymotic disorders of common occurrence. The grouping likewise of some of the cases points in the same direction, though it certainly may be explained on other grounds.

At the beginning it was believed that the cases might possibly be due to some form of metallic poisoning—an obvious possibility, in view of the fact that tinned rations are often consumed by the troops—and consequently hundreds of specimens of urine were tested by expert chemists. Search, however, failed to afford any support for the suggestion.

Finally, it should perhaps be mentioned that since most of the water used by the troops for drinking purposes is subjected to treatment by hypochlorites, there are those who mutter darkly as to the effect of a possible idiosyncrasy to minute quantities of chlorine; correspondingly there are others who dilate upon the circumstance that very few cases have been observed among Indian troops that are non-meat eaters. I am told also that they are immune to scarlet fever, but on none of these latter points have I any assured information.

THE ORGANIZATION OF A FRENCH "HÔPITAL DÉPÔT."

THE "Hôpital Dépôt" is in reality a centre where wounded or sick soldiers are classified and distributed. All the hospital formations of the district send their convalescents to this central dépôt as soon as the state of the latter is such either that they no longer require medical attention or are more or less permanently unfitted for military service. There is a large dépôt of the kind at Aix-les-Bains to which convalescents are sent from an extensive district comprising Chambéry, the valley of the Isère, La Maurienne, Moutiers, Bourg St. Maurice, Brides-les-Bains, Les Marches, Challes, etc.

On their arrival at the Hôpital Dépôt the convalescents are examined and distributed according to their state of health as (1) "fit for service" or "fit to return to the front," in which case they are returned to their regimental dépôt for reincorporation; (2) convalescents who are recommended for a furlough of one or two months or more, according to circumstances; (3) for "réforme" (discharge), according as the infirmity has been contracted in the service from operations of war or the disease is the consequence of constitutional predisposition, in which case the discharge does not carry a pension; (4) men whose wounds have diminished their military value, but who are nevertheless capable of rendering service elsewhere than at the front—these are drafted into the auxiliary services; (5) patients suffering from diseases of the organs of special sense, or whose wounds have left infirmities calling for orthopaedic measures—cases of disease of the nervous system, etc., are classified at the Hôpital Dépôt and dispatched to special institutions; (6) wounded soldiers whose disablement constitutes the base of a claim for immediate discharge and pension. These cases are inquired into by a medical commission which reports in due course.

One of the special duties of the Hôpital Dépôt is to classify and complete the medico-military documents that accompany each man on his transfer to hospital and should follow him on his peregrinations. These highly important documents contain the data upon which his right to a temporary or to a permanent pension is based. The "billet d'hôpital" is the most important of these documents. The medical officers of the various hospital formations apparently do not grasp the paramount importance of this document and too often omit all mention of serious surgical interventions, as well as details of the original injury. The rectification and completion of this document entails an immense amount of avoidable administrative work. No patient is allowed to leave the Hôpital Dépôt until his papers have been put in order and brought up to date.

We are indebted to Dr. Baradat, Chief Medical Officer for the Aix-les-Bains district, for the information on which this note is founded.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN H. S. MONKHAM, C.A.M.C., of Vegreville, Alberta, killed in action in France on December 2nd, 1915, was second in command of the 3rd Canadian Mounted Rifles. He was born in 1876, and took the degree of M.D. of the Toronto University in 1906.

Captain Edward Herbert Wyand, 16th King's Royal Rifles, killed in France on January 31st, was the youngest son of Mr. F. S. Juler Wyand, and was educated at St. Paul's School and Guy's Hospital. He took the diploma of L.D.S. R.C.S.Eng., in 1901, and served as a dental surgeon during the South African war.

Lieutenant George Dewar, R.A.M.C., killed in action in France, was the son of the late Mr. James Dewar, of Aberdeen, and was 23 years of age. After serving with the colours for a few months' training, he obtained permission to return home to complete his medical studies at Aberdeen University, where he passed his final examination with distinction. He was gazetted a lieutenant in the R.A.M.C., and was almost immediately sent to the front.

Died on Service.

Major Archibald V. Becher, C.A.M.C., of London, Ontario, died at Quebec on December 25th from double pneumonia. He was medical officer of the 33rd Battalion. His brother, Lieutenant H. Campbell Becher, was killed in action at Givenchy.

DEATHS AMONG SONS OF MEDICAL MEN.

Cummins, Harry Jackson, Lieutenant 1/5th Gurkhas, fourth son of Dr. Ashby Cummins, Professor of Medicine, University College, Cork, killed in the Dardanelles on August 21st, in an attack on Turkish trenches near Sari Bair, aged 26. He was born in Cork, educated at Cheltenham College, and attained the rank of Lieutenant on April 20th, 1911.

Reed, J. Sleeman, Second Lieutenant, 1st Battalion the Buffs, attached Royal Flying Corps, only son of Dr. J. Sleeman Reed, of Gorleston, Suffolk, died in the Cambridge Military Hospital, Aldershot, on January 31st, aged 19, as the result of injuries received in a flying accident at Farnborough on January 29th. He was educated at Dulwich.

Rieu, Henry, 16th Middlesex Regiment (Public Schools), killed in France on January 29th, was the third son of the late Dr. Charles Rieu, of Woburn Square, and was on the staff of the Merchant Taylors' School. He was 39 years of age.

NOTES.

ANGLO-RUSSIAN HOSPITAL.

THE Anglo-Russian Hospital, formed by a committee of which Lord Cheylesmore is chairman, Sir Starr Jameson vice-chairman, and Lady Muriel Paget honorary organizing secretary, was opened in Petrograd last week. The ceremony was attended by the Empress Marie, sister of Queen Alexandra, under whose patronage the hospital has been formed, and other members of the Russian royal family. The hospital provides 200 beds, and is established in the palace of the Grand Duke Dmitri. The equipment of the hospital—including an operating theatre, *x*-ray installation and bacteriological outfit—is complete. The staff is as follows: *Commandant and Chief Sanitary Officer:* A. M. Fleming, C.M.G., M.B., F.R.C.S., D.P.H. *Surgeons:* H. F. Waterhouse, M.B., F.R.C.S.; W. D. Harmer, M.C., F.R.C.S. *Physician:* T. J. Horder, M.D., F.R.C.P. *Assistant Medical and Surgical Staff:* C. Gould May, M.D.; M. Gardner, M.D.; H. F. Thompson, F.R.C.S.; A. B. Rosher, M.R.C.S. (bacteriologists); G. A. Jones, L.S.A. (anaesthetist); J. M. Flavelle, M.R.C.S., D.P.H. (radiographer). The committee also hopes to establish three field hospitals in places selected by the Russian military authorities, and the whole movement is intended as a practical sign of British admiration and gratitude towards the Russian people. That this feeling is widespread is shown by the fact that the Dominion of Canada has recently sent £10,000 to the committee to express Canadian appreciation of the valour and heroism of the Russian armies.

HONOURS.

The King has given permission to a number of naval officers to wear various decorations conferred upon them by the Czar of Russia. Among them is temporary Surgeon T. S. Bradburn, R.N., who receives the third class of the Order of St. Anne.

SIR IAN HAMILTON'S DISPATCH.

In the list of officers mentioned in Sir Ian Hamilton's Gallipoli dispatch of January 28th are four medical students of Trinity College, Dublin, who hold or held temporary commissions as combatant officers—namely, Captain R. R. Tobin, 7th Royal Dublin Fusiliers (third-year student), since killed; Captain G. H. Davis, 7th Royal Munster Fusiliers (second-year student); Lieutenant A. L. Gregg, 6th Royal Irish Fusiliers (third-year student); and Second Lieutenant F. G. Heuston, 6th Royal Irish Fusiliers (fourth-year student), since killed.

THE INDIAN SOLDIERS' FUND.

The second report of the Indian Soldiers' Fund deals with the period from April 1st to November 20th, 1915. It gives an account of the work of the fund under many headings, and includes a description of the admirably designed and administered Lady Hardinge Hospital at Brockenhurst. It is illustrated by photographs of various parts of the building, including a kitchen when the process of making chupattis was in progress. The fund works in close co-operation with the joint committee of the Order of St. John of Jerusalem and the British Red Cross Society, and in addition to all its other work the fund has taken up systematically the supply of comforts, and such clothing as is required, to the Indian prisoners of war in Germany. Most of the men are interned at Zossen, and in an appendix a report by an official of the embassy of the United States in Berlin is reproduced; it is of a favourable character.

CANADA.

In view of the demand for medical officers for service overseas, the military authorities have requested the A.D.M.S. of each division in the Dominion to take a census of all qualified practitioners who are available for service.

The fourth year medical students at the Universities of McGill and Manitoba have requested that instruction be given throughout the summer months of this year so that they may be given their degrees in the autumn and be able to enlist at once, they, on their part, agreeing upon graduation to offer themselves for service overseas. The faculties of medicine, however, do not consider that it would be in the interests of the students themselves to crowd the work of the final year into a short six months, and it is doubtful whether the licensing boards would agree to consider this an *annus medicus*.

MEDICAL OFFICERS WANTED.

3/2nd East Anglian Field Ambulance.

A medical officer is required for this ambulance. Imperial service obligation. Pay and allowances as in regular army, also outfit and field kit allowance. Applications to the Officer Commanding, Halton Park, Tring.

2/1st Highland Mounted Brigade Field Ambulance.

Three medical officers are required for this ambulance. Full particulars to be obtained from Captain Mowat, Officer Commanding, 2, Mount Street, Diss, Norfolk.

Scotland.

CENTRAL MIDWIVES BOARD FOR SCOTLAND.

THE Central Midwives Board for Scotland has been provisionally constituted as follows: Lady Balfour of Burleigh, appointed by the Lord President of the Council; Sir Archibald Buchan-Hepburn, Bt., by the Association of County Councils for Scotland; Sir Robert Kirk Inches, by the Convention of the Royal Burghs of Scotland; Lady Susan Gordon Gilmour, by the Scottish Branch of the Queen Victoria Jubilee Institute for Nurses; Dr. A. Campbell Munro, by the Society of Medical Officers of Health for Scotland; Professor J. Halliday Croom, M.D., F.R.S., by the University Courts of the Universities of Edinburgh and St. Andrews conjointly; Professor Murdoch Cameron, M.D., by the University Courts of the Universities of Glasgow and Aberdeen conjointly; Dr. J. Haig Ferguson, by the Royal Colleges of Physicians and Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow; and Dr. M. Dewar and Dr. J. Wishart Kerr, by the Scottish Committee of the British Medical Association.

THE EDINBURGH SCHOOL BOARD.

The report of the Board for 1914–15 gives some interesting information concerning the care of necessitous children. The nominal roll of the schools under the Board's care was 45,721, a small increase on the previous years, but the attendance showed a decline. The best attendance is in the autumn, the worst in midsummer. An account is given of the excellent arrangements for Special Children's Courts. These are held on Saturday mornings; cases for prosecution are notified by the police to the Board, the Board's officers attend the court and present the school record of the child. Equally effective are the arrangements for dealing with defaulting parents—a second fine is rarely necessary, and in a large number of cases a decision is held over on the parent giving a promise to keep the child in regular attendance in future. "The promise was invariably kept, and the case was withdrawn."

The Board has established, in a convenient central situation, a fully-equipped school clinic where children attend daily for treatment. The clinic has been working for two years. There are two dental chairs and apparatus for eye work. Four dentists, two oculists, and four nurses are employed. From September, 1914, to August, 1915, the following work was done:

	No. of Pupils.	Attendances.
Defective vision	944	967
Defective teeth	2,341	2,622
External eye diseases	221	4,680
Ear diseases	72	588
Skin diseases	93	594
Fitting of spectacles	626	626
Total	4,197	10,077

Ringworm is treated by *x* rays at the Royal Infirmary by arrangement—213 cases were dealt with and 188 cured; 686 pairs of spectacles were supplied and all were paid for by the parents, save 16, which were given free. The spectacles are contracted for at a low price. At the outset of the war there was a considerable increase in the need for feeding children, owing to the delay in the arrangement for the support of the dependants of those on military service; free dinners were given to all those whose fathers were on service from the outbreak of the war until Christmas when the arrangement was suspended. At present penny dinners are supplied to necessitous children, the average cost of the meal is 1.7 pence. The close working of the school authority and the police is a matter for remark. It is written: "The requirement as regards clothing and boots for necessitous children continues to be met by the operations of the police-aided clothing scheme and other charitable agencies. During the session 2,043 children were supplied by the police with boots and clothing according to their needs. The following arrangements have been come to between the Board and the Committee of the police-aided scheme in dealing with applications for boots or clothing. The schedules which contain reports by the headmasters of the needs of the children are forwarded to the chief constable as they are received from the schools. Inquiries are then made by the police as to the character and circumstances of the parent, and the decision of the Committee with regard to each case is communicated to the Board." (The same arrangement, we are told, works very satisfactorily in Brighton.) A special point appears to be made of visiting the homes of neglected children and bringing into play the arrangements of the City Corporation for the cleansing of the bodies of the children and the furniture and fabric of the homes.

Ireland.

A MEETING of medical practitioners was held in the Adelphi Hotel, Waterford, to promote a testimonial to Dr. Joseph Power (Ardfinnan, co. Tipperary), formerly President of the South-Eastern of Ireland Branch of the British Medical Association, in recognition of the very valuable services rendered by him to the medical profession throughout Ireland in connexion with the certification question under the Insurance Act. The meeting was of opinion that, owing to the financial and professional advantages conferred on the entire profession, the testimonial should command the spontaneous support of every one of its members. During the dispute between the profession and the Insurance Commission Dr. Power contributed to the daily press many able letters, which were the means of gaining much influential lay support. It was, however, as the author of the pamphlet *Facts about Irish Doctors and the Insurance Act*, which was circulated amongst Irish public bodies, that perhaps Dr. Power conferred the greatest service upon his colleagues. At the cost of much valuable time and at considerable personal expense, he organized, with local assistance, the profession in the south-east of Ireland, with the result that in this district the objectionable scheme for certification of sickness benefits, adopted by the Insurance Commissioners, met, perhaps, in all Ireland, its most formidable resistance. Subscriptions are limited to £1 1s. Dr. J. H. Jellett, 11, Beresford Place, Waterford, has been appointed treasurer, and will receive all subscriptions, which should be forwarded without delay, as the fund will be closed on March 17th next.

HOUSING PROBLEM IN DUBLIN.

Dr. P. C. Cowan, Inspector of the Local Government Board, recently delivered a lecture at the College of Science, Dublin, on the housing problem, in the course of which he said that it was estimated that about eight million men were employed in regular occupations in the United Kingdom, and that about one million of them had wages of less than 20s. a week. In Dublin, out of a total of 42,000 families, at least 14,600 were in a like condition, and 5,600 men earned not more than 15s. a week. Mr. Seebohm Rowntree had calculated that the minimum cost of the necessaries for physical efficiency of families left no margin for rent in the wages of a man with a wife and three children, unless he earned more than 18s. 8d. a week, and controlled himself and his family with almost impossible austerity. Food was put down at 13s. 9d., coal at 1s. 10d., clothing at 2s. 3d., and sundries 10d.; total, 18s. 8d. The root difficulty of the housing question was the low wages of a large section of the working classes, and the calculation explained why the town population had to be recruited from the country, owing to the feeble physique of the young people brought up under the hard conditions of the poorer classes in towns. In 1911 the approximate numbers per 1,000 of families living in single rooms were: In England and Wales, taken as a whole, 32; in Ireland, 64; in Scotland, 125. The worst local figures in the three kingdoms were: In Finsbury, 277 per 1,000; in Dublin, 340 per 1,000; in Coatbridge (near Glasgow), 273 per 1,000. With a similar population, Scotland had more than twice the number of single-roomed houses than Ireland

In Irish cities and towns, and especially in Dublin and the adjacent townships, good examples of improved working-class houses provided by the sanitary authorities were to be found. The munificence of Lord Iveagh in respect of housing and the wisely-guided activities of the Dublin Artisans' Dwelling Company, a company founded mainly on philanthropic basis, were specially notable. In Cork 420 pleasing and suitable houses had been erected by the Cork Improved Dwellings Company, which, by careful management, was able to pay 5½ per cent. to its shareholders.

Dr. Lorcan Sherlock, in moving a vote of thanks, said that the Dublin Corporation did not always receive fair play from those who did not fully understand the many difficulties which had to be dealt with. The principal of these was the intense poverty of the working classes in Dublin and their absolute inability to pay an economic rent for the houses being built under the corporation schemes. If the workers of Dublin were to be properly housed, the responsibility fell on the employers to pay a wage sufficient to enable them to pay the rent for decent housing accommodation. Liverpool for £1,350,000 had only provided accommodation for about 2,000 families, whereas Dublin had provided for £400,000 accommodation for 1,200 families, and the annual charge on the rates of Dublin was only £14,000, as against £35,000 in Liverpool. He paid a tribute to the time and judgement the members of the Housing Committee were devoting to this question in Dublin, but the great difficulty they had to contend with was the want of sufficient money. Sir Lambert Ormsby, F.R.C.S.I., mentioned that the Association for Housing of the Very Poor, of which he was chairman, had for sixteen years paid a dividend of 2 per cent. on the houses rented at 1s. 6d. and 2s. a week to the very poor of the city. The Artisans' Dwelling Company had always paid 5 per cent. These two companies showed what could be done by a united and philanthropic effort.

England and Wales.

SOME time ago, while a number of nurses and patients of the Epileptic Colony at Warford, near Alderley Edge, were skating on a frozen pond, the ice gave way, and eight persons—nurses and patients—were drowned. Dr. McDougall, the medical superintendent of the colony, was quickly on the spot, and at the risk of his life, without divesting himself of his clothing, plunged into the water and saved three patients. His heroic conduct was highly spoken of by the coroner, and the Alderley Urban Council passed a special resolution. The Royal Humane Society has now notified its intention to award special testimonials to Dr. McDougall and other persons for their rescue work.

THE MANCHESTER AND DISTRICT RADIUM INSTITUTE.

The first annual meeting of the Manchester and District Radium Institute was marked by a sad incident. The meeting, which was held at the Manchester Royal Infirmary, was presided over by the Lord Mayor of Manchester at first, and later by Sir William Cobbett; as the Lord Mayor attempted to rise to move the adoption of the report it was noticed that he had great difficulty in speaking, and had to sit down again. He was seen to be seriously ill and was removed to a private ward of the infirmary. The attack, we regret to state, has since proved fatal.

The report stated that most of the work done during the year had been in the treatment of cancer, but it was hoped that the treatment of other diseases might soon be undertaken. The difficulties in the treatment of cancer were very numerous, and until a sure method was devised of checking the formation of secondary deposits it would be impossible to claim cures. The investigations of the Middlesex Hospital Cancer Research Laboratories on carcinoma and sarcoma in mice and rats had suggested the possibility of producing immunity by means of radium, but so far no methods had been devised to do this with certainty in human malignant disease. The practice of the London Radium Institute of only treating inoperable cases had been followed. All cases presenting themselves were first seen by a surgeon, and only when he refused to operate was treatment by radium or x rays considered. The treatment of tumours by embedding tubes of radium had been carried on extensively, and in the case of large and deep-seated growths the results obtained by embedding were on the whole better than those obtained by the application of superficial plates. In a number of cases the primary growth had entirely disappeared, and much pain and suffering had thus been saved, but secondary growths, many of which in turn had been lessened in size, had prevented the attainment of the desired result. The number of patients registered during the year was 655, of whom 519 had received treatment, 93 had been found unsuitable, and several were still on the waiting list. The honorary secretary-treasurer, Sir William Milligan, in presenting the financial report, said that the last year began with a balance on deposit in the bank of about £9,000, but in July a further supply of radium was bought, costing £3,987, and the balance now in hand was £5,027. The director, Dr. Burrows, urged the establishment of a research laboratory, and in this he was supported by Sir E. Rutherford, who said that the radiologist and the physicist, though engaged in independent investigation, might be of the greatest assistance to one another. A committee was accordingly appointed to consider the question.

Correspondence.

EDUCATIONAL UNREST.

SIR,—I see you have reproduced in the pages of your JOURNAL [February 5th, p. 213] the question which just before the close of the session I addressed to the Prime Minister as to the appointment of a committee to inquire into the organization of our present educational system, with special reference to the changes to be introduced when the war is over. The Prime Minister's answer was not altogether satisfactory. Possibly he did not quite well realize all that my question suggested. He said that partial effect had already been given to the scheme foreshadowed last year, which was concerned with the development of scientific research, and that the President of the Board of Education would be prepared to consult all persons and bodies competent to advise. More than this, however, is needed if our educational system is to be brought into harmony with the conditions that will prevail after the war. The *Westminster Gazette* of Monday last devoted its leading article to "The Educational Unrest." That unrest undoubtedly exists. Numerous bodies have recently held meetings, and have referred in general terms to changes that are already overdue, the necessity of which the war has brought into striking prominence.

It may be that the committee which was appointed to advise as to further facilities for scientific research will offer many useful suggestions. But some more practical proposals are needed. It is to the application of science to the different problems that now confront us that our attention should be directed. No country has men who are more distinguished in the various branches of science than we possess. Where we seem to fail is in close association of science with the several activities, whether professional, commercial, or industrial, in which our people are engaged. To bring about this more intimate connexion of science with our daily work it is essential that those who direct our schools and colleges should be in full sympathy with scientific study, and should have had the experience necessary to realize its essential value.

There are many other problems connected with the organization of education that demand attention. Among them are questions affecting the relations of the central to the local education authorities, and questions affecting the duties of the citizen to the State and of the State to the citizen. In order that a beginning may be made in the consideration of these pressing matters, I have suggested the appointment of a committee, independent of any Government department, and I still hope that the Prime Minister may see his way to accept this suggestion.—I am, etc.,

Chilworth, Feb. 8th. PHILIP MAGNUS.

DUTIES OF MEDICAL PRACTITIONERS IN CASES OF CRIMINAL ABORTION.

SIR,—Your summary of the position of the profession towards criminal abortion is open to serious criticism. You summarize it thus:

> 1. Any one who, knowing of the commission of a criminal offence, attempts to conceal his knowledge from the authorities may himself be guilty of the offence of misprision of felony—an offence, however, which is practically obsolete.

None of the published utterances on this matter—whether of judges, counsel, public prosecutor, the Council of the Association, or the Royal College of Physicians—makes any reference to attempts to conceal the offence of criminal abortion. All the references, without exception, are to abstention from giving information. There is all the difference in the world between active concealment and passive non-revelation. No one proposes that doctors should actively assist their patients to conceal offences. All that is contended for is that doctors should not be compelled to use, for the purpose of rendering their patients and others liable to prosecution for felony, information obtained by professional attendance on those patients. The difference is material. By actively assisting in concealment the doctor would be guilty of misprision of felony; it does not follow that he would incur the same guilt by mere passive abstention from action.

> 2. An ordinary citizen, not being a barrister or solicitor, is under a moral duty to inform the authorities when he has knowledge of the commission of a criminal offence.

This is incorrect. The obligation under which the ordinary citizen lies is not a moral, but a legal, obligation. The moral obligation is in many cases exactly the reverse. A priest is in this country, though not in France, under a legal obligation to reveal the knowledge, that may come to him in the confessional, of the commission of a crime; but, so far from being under any moral obligation to do so, he would by doing so not only violate his moral duty toward his penitent, but would also bring upon himself, on moral grounds, very serious disciplinary measures from his ecclesiastical superiors. Your pronouncement is in flat contradiction to that of the Royal College of Physicians, which states explicitly that the moral obligation of the medical practitioner is the reverse of what you say it is.

> 3. A medical man, however, is under no such moral duty where his knowledge is obtained in his professional capacity, so far, at any rate, as the offence of abortion is concerned.

This puts the exemption of the medical man much too low. It is a miosis that amounts to *suppressio veri*. Not only is the medical man under no moral obligation to inform the authorities, but he is under a moral obligation not to inform them; and with this moral obligation his legal duty does not conflict. This is the kernel of the matter. This is the really important knowledge that emerges from the discussion. As to the moral obligation, few doctors, I think, have had much doubt; but many of us had an uneasy suspicion that the law laid upon us a duty in certain circumstances to violate that obligation. We now know that this suspicion was baseless; and the very important result of this discussion is that we have it now on unimpeachable authority that we can perform our duty as medical practitioners towards our patients without in the slightest degree encroaching upon our duty as citizens towards the State.—I am, etc.

Parkstone, Dorset, Feb. 7th. CHAS. A. MERCIER.

*** As our correspondent correctly points out, the offence of misprision of felony is a very different matter from the mere non-user of knowledge by neglecting to communicate it to the authorities. The fallacy in the above criticism lies, however, in the fact that Dr. Mercier has confused moral and legal duties. A legal duty is one to which the law will enforce obedience, whilst a moral duty is one which rests for its observance upon public censure only. Inasmuch, therefore, as the duty which lies upon ordinary citizens to inform the authorities of the commission of a criminal offence is one to which no legal consequences attach, it is, as stated in our article, a moral and not a legal duty. This being so, there were in the case of medical practitioners, and also, as our correspondent points out, in the case of priests, two conflicting moral duties—the one owed to the patient and the other to the State; the result of the conflict being to establish the former at the expense of the latter in cases of abortion.

TEMPORARY DEAF-MUTISM AND BLINDNESS.

SIR,—Some cases of recovery from deaf-mutism during fits of laughter seem to point to vascular occlusion as a possible cause of the loss of function. From time immemorial it has been observed that shock or fright is accompanied by pallor, and the fact that the hairs sometimes stand on end is mentioned by Homer, who tells us that King Priam was so perturbed on a certain occasion that the hairs stood upright on his limbs:

> *Ὀρθαὶ δὲ τρίχες ἔσταν ἐνὶ γναμπτοῖσι μέλεσσιν.*—*Il.*, xxiv, 359.

This and Job iv, 15, being undoubtedly the earliest records of cutis anserina. The pallor which accompanies this condition of the skin, when not wholly due to splanchnic engorgement, being probably caused by paralysis of the vaso-dilator nerves; the unopposed and overaction of the vaso-constrictors, and possibly the natural contractility of the vascular tissue, resulting in partial or complete occlusion of the blood vessels, and consequently a diminution or complete cessation of the blood supply—a condition which in the case of the cerebral blood vessels seems to be an adequate explanation of those cases of hemiplegia simulating that caused by cerebral haemorrhage, though the cause may be very different from that of shock, the sudden recovery, however, from paralysis naturally precluding the supposition of cerebral haemorrhage or lesion. It is therefore reasonable to suppose in cases of deaf-mutism, that a similar and circumscribed occlusion of blood vessels to the centres for speech and hearing or their communications, and probably also to the centres for vision in cases of blindness, is responsible for some, at any rate, of such conditions originally brought on through peripheral shock and also by fright. During laughter the sudden increase of blood pressure to the head would, it seems likely, open up the occluded blood vessels in the bloodless areas, and these flushed out with healthy blood, speech and hearing would return as suddenly as they disappeared, and the vascular nerve control stimulated to its normal activity prevent a return of occlusion, and permanent recovery ensue. Such recovery, however, could of course not take place if the occlusion became so complete or prolonged as to cause degeneration of tissue. The practical application of such theory would naturally be the stimulation of the flow of blood to the head by whatever means might be deemed advisable.—I am, etc.,

Liverpool, Jan. 25th. WILLIAM BRAMWELL.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE WEEK'S SUBSCRIPTIONS.

THE subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund received during the week have been as follows:

	£	s.	d.
Mr. J. Lynn Thomas, C.B.	5	0	0
Association of Medical Women in India (per Dr. M O'Brien)—			
Dr. Mackenzie	1	0	0
Major Godkin, I.M.S. ...	4	0	0
Mr. A. Chapman, proceeds of dependants' prescriptions	0	10	2
Collected by Liverpool Chemists' Association	6	10	6
Miss A. Singha	1	0	0
Australian Pharmaceutical Conference (per the Agent-General for Queensland) (total, £986)	127	0	0

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

Obituary.

JAMES STANLEY NEWTON BOYD, M.B., B.S.Lond., F.R.C.S.Eng.,

SENIOR SURGEON TO CHARING CROSS HOSPITAL.

Mr. Stanley Boyd, whose death was announced in the last number of the Journal, was born at Shrewsbury, May 18th, 1856, his parents being Major James Boyd, 86th Regiment, and Emma, daughter of Henry Newton, a burgess of Shrewsbury. He spent his boyhood at St. Heliers, Jersey, where his parents resided, and was educated at a private school there. He came to London in 1872 with an introduction to G. A. Parkes of Netley, by whose advice it is probable he was guided in taking up medicine as a profession.

He began his medical education at University College, London, in 1872, where he had a distinguished academic career. Pearce Gould, Pepper, Horsley, C. J. Bond, Stonham, and others who have become distinguished surgeons, were among his contemporaries. He was house-physician to Wilson Fox and house-surgeon to John Marshall, and was no doubt much influenced by the latter's teaching, especially in the application of scientific investigation to the practice of surgery. Boyd, like several of his contemporaries, owed much of his subsequent success to that disciple of Lister and Billroth, Marcus Beck, whose teaching of the science and the art of surgery was an outstanding feature of University College Hospital at that time.

He passed his examinations with honour to himself and his medical school, taking the Gold Medal in Anatomy at the first M.B. at the London University, and honours in his final M.B., B.S., in Medicine and Obstetrics in 1879. He became F.R.C.S.Eng. in 1881.

After taking his degree he became demonstrator of anatomy and of practical surgery, and surgical registrar, and the experience of this latter post had doubtless a great influence on his future career. By conscientious devotion to the duties of this office he laid the foundation of his thorough knowledge of pathology and of its important bearings in surgical practice. It made him a master of precise description of an operation and of the subsequent microscopic investigation, if necessary, to make the case record complete. In later life he would often refer to the value which such an appointment is to a young surgeon, if he took full advantage of the great opportunities it offered, and those who acted on this suggestion have never regretted it.

In 1882 he was appointed assistant surgeon to Charing Cross Hospital, and it was soon evident that he was an acquisition to the anatomical and surgical teaching of the hospital.

He became full surgeon in 1891, and since 1905 he had been senior surgeon to the hospital in succession to John H. Morgan, F.R.C.S., C.V.O.

He held most of the important posts at the hospital and school, such as lecturer on anatomy from 1888 to 1897, dean of the school from 1890 to 1895, pathologist 1886 to 1888, lecturer on surgery from 1896 to 1905, and on operative surgery from 1899 to 1901.

He was chosen as treasurer to the school in 1906, and held the post during a most critical period of the school's history till 1911.

At the time of his death he was surgeon to the Hospital for Consumption at Brompton, consulting surgeon to Paddington Green Hospital for Children, and to the New Hospital for Women, and to other hospitals in the suburbs. In addition to his hospital and private work he had been attending and operating daily at the 4th London General Hospital in his capacity of Lieutenant Colonel R.A.M.C. (T.F.). Boyd had been a member of the council of the Royal College of Surgeons for two years, and had been examiner in surgery at the Royal College of Surgeons and at Cambridge University.

Stanley Boyd has not written any treatise on surgery bearing his name, being too retiring and too modest to do so of his own initiative, but no one had a better pathological, clinical, or practical knowledge of surgery than he.

For these reasons he was chosen by others to write for them. In this way he was chosen to edit the twelfth edition of Druitt's *Vade Mecum* in 1887, and also the seventh edition of Green's *Pathology and Morbid Anatomy*, at the request of his old friend, Dr. T. H. Green, his medical colleague at Charing Cross Hospital.

He also wrote articles in *Heath's Dictionary of Surgery* (Hospital Mortality and Hospitalism), in *Quain's Dictionary of Medicine* (Diseases of Mouth, Tongue, and Veins), in Treves's *System of Surgery* (Fractures), in the *Encyclopaedia Medica*, vol. i (Aneurysm), and other informing and lucid articles in current medical journals and at medical societies, amongst which may be named a paper read at the Medico-Chirurgical Society in 1893 on Artificial Anus Treated by Resection and Enterorrhaphy by Maunsell's Method, and others on Oöphorectomy in Cancer of the Breast in 1897, and on Cancer of the Tongue, Mouth, and Fauces, with W. H. Unwin, in the *Practitioner* in 1903.

Some of Boyd's doctrines were not at first accepted, but in the light of later events show that he was a far-seeing man. In the early days of the Women's School of Medicine he was a lecturer on anatomy, and much of the success of that school was due to Stanley Boyd, who had the courage of his convictions and never failed to advocate the claims of women to be admitted to the examinations of the colleges and universities. Like all pioneers in this movement, it made him unpopular in some quarters. In another direction he was also a pioneer in believing that the only way to reorganize the University of London was to concentrate in a few centres for the teaching of the preliminary sciences, and much of the success which has now come to Charing Cross Hospital Medical School by its amalgamation for that purpose with King's College could have been effected years ago had the counsels of Stanley Boyd been adopted.

As another instance of his foresight it may be recalled that over twenty years ago he advocated in the public press that Charing Cross Hospital should be removed to a suburb south of the Thames. This led to much opposition, but his project has quite recently been adopted by a neighbouring hospital.

His lectures both in anatomy and surgery were as good and thorough as could be given. He was, moreover, a brilliant operator, bold but always careful, and experienced in every branch of surgery. He was keenly interested in the operative treatment of malignant disease, especially where the breast or mouth or fauces were involved, and his success in radical operations for these conditions was in some measure due to his sound anatomical knowledge.

The best tribute to his skill may perhaps be estimated by the number of his colleagues who owe him a deep debt of gratitude for his professional services either to themselves or members of their family.

Beneath a rather reserved and, to some people, a matter-of-fact manner, there lay a very sincere warm-hearted nature, ever ready to rejoice with his friends in their success and to show active and generous sympathy in distress. Boyd hated all sham and hypocrisy, and disliked slackers or slackness in work. This soon came to be appreciated by the students, and when acting as dean he applied these principles in the interest of the school.

He was a man of high principles and integrity, and willing to make great sacrifices for ideals. As chairman of the Medical Committee of the hospital and of the School Committee he showed much zeal and devotion in forwarding the interests, welfare, and progress of both, always bearing in mind that the benefits were mutually reciprocal.

Though not an athlete himself he was a great believer and supporter of athletics as a means of improving the *moral* and character of a school of the university.

The Charing Cross Medical School and Hospital have lost in Stanley Boyd an able teacher and a skilled surgeon as well as a successful administrator and organizer.

In 1889 he married Florence Nightingale Toms, M.D., of Chard, Somerset, who became surgeon to the New Hospital for Women, and subsequently held the post of lecturer on gynaecology at the Royal Free Hospital. At the time of her death in 1910 she was senior surgeon at the New Hospital and was acknowledged to be a skilful surgeon and clinician. Stanley Boyd had a true helpmate in his wife, and her death made a great difference in his life. His mother and one sister survive him.

Dr. Amand Routh writes:

Having entered University College Hospital as a student in 1873, the year following the entry of Stanley Boyd, and

with similar sequence having joined the staff of Charing Cross Hospital in 1883, I have had almost daily opportunity of appreciating his personal integrity and professional uprightness and skill during over forty years. The late Dr. Montague Murray, F. W. Mott, and the late C. J. Arkle soon joined us at Charing Cross Hospital, and we all worked there in perfect harmony.

Boyd laboured with disinterested zeal for the good of the hospital and school, and for the welfare of the students both during their hospital career and afterwards, and there was keen competition to become his house-surgeon.

His advice was sought and usually accepted by both colleagues and students, and his surgical opinion and help were similarly coveted in personal emergencies.

His friendship was deep and true, demonstrated mainly by acts of unselfishness, and his sympathy was genuine, but not on the surface, and was sometimes only truly realized when his help was being utilized in domestic or surgical crises. Indeed, he never failed one in emergency, and his counsel was so sound, so generous, and so clearly expressed that it always helped to clarify the outlook and lighten the difficulties of the situation.

As an instance of his unselfish impartiality I well remember how he acted when the obstetric physicians sought permission to perform all gynaecological operations upon their own cases. Most of the major operations had hitherto been in the hands of the surgeons, Boyd especially doing the bulk of the abdominal work. As soon as he realized that gynaecology was becoming a surgical speciality he helped to have all such surgical restrictions removed, although he knew, and so stated, that the change would inevitably lead to the majority of major gynaecological operations going to the special rather than to the general wards.

The unexpected death of Stanley Boyd has startled and distressed his old friends more than any professional loss since the death of Montague Murray in 1907. Their characters and lives were very similar, and their outlook on this world and the next was governed by a deep but unostentatious piety which controlled all their actions.

Such men as these exert an enormous influence upon the heart of a medical school, and their places will be difficult to adequately fill.

Dr. HARRINGTON SAINSBURY writes:

As one of Stanley Boyd's oldest friends, may I be allowed a little space in which to attempt, in brief outline, a record of the man himself as I knew him? Our friendship began over forty years ago at University College, London (he had come up to London from Jersey in 1872); it continued without a break and in close association until his death.

In the second chapter of the *Thoughts of the Emperor Marcus Aurelius* we find the ejaculation, "Whatever this is that I am, it is a little flesh and breath, and the ruling part": there it lies exactly, and in the case of Stanley Boyd it was the "ruling part" which ruled. Actually he was very vital, but constitutionally, even in student days, there were symptoms which made one anxious, and in the course of his career bodily disabilities occurred from time to time which might have taken the heart and the go out of any one less courageous. As it was, these did not deflect his course, even by a little; under the breath of the spirit his ship of life drove full sail for the port of duty; that was his aim and end from student days onward right through life, and the outcome of it all to the general eye was an abounding vitality.

Marcus Aurelius devotes the first chapter of his *Thoughts* to the several personalities which came into his life, and he ends up, "to the gods I am indebted for having good grandfathers, good parents, a good sister, good teachers, good associates, good kinsmen and friends, nearly everything good." Boyd's debt to the heavenly powers was a like one. I can go back to the charm of his Jersey home at St. Helier's, and recall happy memories of a visit there, when the circle was still complete, Major and Mrs. Boyd, a younger sister and brother forming that circle; and I can see there, in the simplicities and integrities and unaffected enjoyment of life which prevailed, the natural source of the qualities which characterized and adorned him. It was a military home, where duty figured largely and cheerfully, and it has always seemed to me that, in consequence, Boyd retained much of the soldier's outlook all through his life; this impression has been deepened since the war began.

When Boyd came to London he saw a great deal of his uncle, Henry Newton, who had by then retired from a judgeship in the Indian Courts after a distinguished and strenuous career in that country. Mr. Newton, who regarded him almost as a son, had a great influence over him, and to that influence on the spiritual side of things much may be traced, in particular his sympathies with the Society of Friends; he often attended the Westminster Meeting.

A great friend of his at University College was William S. Tuke, the prognostics of whose life were brilliant, but the "dark economy of heaven" did not see fit to fulfil them here. Through him Boyd came to know Dr. Hack Tuke and his family, of long-established Quaker origin and traditions; here he found kindred sympathetic influences and friendships which endured.

It is not possible to name all those among his contemporaries at University College with whom he was associated, whom he influenced and by whom in turn he was influenced, but I would name in particular Victor Horsley (to whom in the earlier days he was much bound in a keen pursuit of elusive knowledge), C. J. Bond of Leicester, Dawson Williams, Arthur Quarry Silcock, Amand Routh, F. W. Mott, Montague Murray; the last three became colleagues of his at Charing Cross Hospital.

Amongst his teachers at University College Hospital one name stands out pre-eminently, that of Marcus Beck, a man who figured much more in his influence upon others, and in the affectionate remembrance which he implanted, than in the "alarums and excursions" which attend the presence of not a few upon the stage of life. Judged as a man who moved others, Marcus Beck was a great force; it is surprising how he is still loved and remembered.

I am not able to take up the tale of Boyd's professional associations and friendships after he joined Charing Cross Hospital, but I would like to give the names of two friends, John Abercrombie and James Galloway.

From about 1880 onwards began his connexion with the London School of Medicine for Women, to which, in the chivalrous way which was his wont, he gave without stint time and labour and his most serious endeavours; here, as always, recognizing for himself and others one standard only—namely, the highest. Many friendships had their origin in this school, and here he found, as his great reward, Florence Nightingale Toms, M.D., from a family well known and much respected in Chard, Somerset. They were married in 1889, and with his marriage began the happiest and fullest period of his life, for the two were united not only by the bonds of affection but by an exceptional community of tastes, interests, and ideals; they were husband and wife and at the same time true comrades. Mrs. Boyd died in 1910, to the sorrow of all who knew her, to his grief before all. Henceforward he continued to work with the same thoroughness but not with the same incentive, for joys could no longer be doubled, sorrows halved. He left special directions that his funeral should follow as far as possible in all details the funeral service of his wife; and if this was departed from by the introduction of a military element, it was done so after full consideration and in the belief that Mrs. Stanley Boyd would have welcomed the departure, proud of the work which he had given to his country in its hour of need, proud of her lieutenant-colonel.

What remains to be said? Stanley Boyd was a true friend, never so happy as in the doing of a kindness, and grudging no pains in the rendering of a service; it is consoling to think that there are those, and they are many, who will always miss him, for this is but a just tribute to his worth. If there are some who have misunderstood him—and who shall escape misunderstanding?—let them be assured that nothing petty, nothing ungenerous, lay behind, and that his intention ever pursued the ideals which claimed him.

His mother and sister, who have lived with him since 1910, may well be proud of him, and herein find their truest consolation.

CHARLES STONHAM, C.M.G., F.R.C.S.,

SENIOR SURGEON, WESTMINSTER HOSPITAL; COLONEL A.M.S.

MR. STONHAM, whose death was announced in the BRITISH MEDICAL JOURNAL of February 5th, was the third son of Mr T. G. Stonham of Maidstone, where he was born on March 27th, 1858. He was educated at King's School, Canterbury, and afterwards at University College, London, where he had a distinguished career as a student. He was gold medallist in surgery, in medicine, and in gynaecology, and held all the resident posts in the hospital. He won the Atchison Scholarship in 1881. He took the diploma of M.R.C.S. in the same year, became a Fellow in 1884, and was for some years senior demonstrator of anatomy and curator of the pathological museum at University College. In 1887 he was appointed assistant surgeon to Westminster Hospital, becoming full surgeon in 1895 and senior surgeon in 1897. He was lecturer on surgery and teacher of operative surgery at Westminster, and examiner in surgery at the London Society of Apothecaries and the Royal University, Ireland; he had been examiner in anatomy of the Conjoint Board in England.

Mr. Stonham was the author of a *Manual of Surgery* in three volumes and of various other works, including descriptive catalogues of specimens of medical pathology, surgical pathology (part ii), and gynaecology and obstetrics in the Museum of University College, and of morbid anatomy in that of Westminster Hospital. He contributed articles on gonorrhoea and other subjects to *Quain's Dictionary of Medicine*, and on brain abscess to the *Medical Annual* of 1888.

Mr. Stonham served in the South African war with the rank of major in the R.A.M.C. He was chief surgeon and officer in command of the Imperial Yeomanry Field Hospital, and wrote a report of the work of the hospital and of the bearer company attached to it. He was mentioned in dispatches, and received the Queen's medal with four clasps. In 1901 he was made C.M.G. He was lieutenant-colonel in the R.A.M.C.(T.F.), commanding the London Mounted Brigade Field Ambulance, which he raised some years ago. On the outbreak of the present war he was mobilized with the ambulance, and in June, 1915, was seconded and made consulting surgeon to the forces in Egypt with the rank of full colonel. In that capacity he did excellent work. He continued to hold the appointment till he was prostrated by dengue and had to return home on sick leave. His illness proved fatal on January 31st.

Mr. Stonham was a sound surgeon, a bold and successful operator, an inspiring teacher, and a good organizer. As an examiner students sometimes complained of a slight brusqueness of manner, but in his decision as to the fate of candidates he was, we understand, more accustomed to temper justice with mercy than many judges more suave of speech. He was keenly interested in ornithology, a member of the British Ornithologists' Union, and the author of a beautifully illustrated work on *The Birds of the British Islands*.

He was a man of large experience and observation, and his knowledge of life, sense of humour, and raciness of speech made him an amusing and stimulating companion. In him the profession has lost a distinguished member, and his colleagues and many patients a valued friend. He leaves a widow and one daughter.

MR. WALTER G. SPENCER writes:

Charles Stonham was a man of great natural ability, who profited to the full by the teaching he received from the distinguished men then on the staff of University College Hospital. Marcus Beck was the great exemplar upon whom he modelled himself, whilst Berkeley Hill gave him the inclination to his particular department of practice. In addition, as obstetric assistant under Sir John Williams, he obtained a good introduction to abdominal surgery. For a short time he was a member of the surgical staff of the North-West London Hospital, also of the Cancer Hospital, and some years later he was for a time surgeon to the Poplar Hospital for Accidents.

Stonham's commanding spare figure, striking face, and the energy he threw into speech and movement always impressed students and colleagues. He was perfectly ambidextrous; his long thin hands were used most skilfully. He was a very rapid operator, beginning and ending quickly, yet proceeding with all due caution at critical stages of the operation. He will be remembered at the Westminster Hospital for many brilliant successes, and for many acts of kindness to patients, students, and nurses. Whilst actively engaged as a hospital surgeon and in private practice he distinguished himself in other ways. In early life he was an enthusiastic mountaineer, was a member of the Alpine Club, and made some noteworthy climbs. He displayed perhaps the most original talent as an observer of birds. He filled his house with a beautiful and rare collection of birds and their eggs, and he published a large book on British birds, as notable for the guidance he gave to the artists in making the drawings as for the bird lore included in the text.

Stonham commenced his military service as surgeon in the Middlesex Yeomanry. With the outbreak of the South African war he organized and took out as surgeon-in-chief the Imperial Yeomanry Field Hospital. A remarkable incident occurred soon after landing. He, with his field ambulance arrived shortly after De Wet had attacked and captured the Derbyshire Militia. It fell to him, as senior officer present, to arrange matters with the Boer general and also to be the first to inform the British authorities of the mishap.

On his return, he actively continued this work by forming a mounted ambulance, and, in spite of lack of sympathy and financial support, his unit took part in manœuvres, and when the present war broke out he was fully prepared, and could have taken it out to France with the first Expeditionary Force. But he had to undergo a severe trial to his patience; his trained men and horses were required to make up deficiencies elsewhere, and he had to spend a winter in East Anglia recruiting to replace what had been taken away.

At last he and his ambulance brigade were ordered out to Egypt. He was there soon appointed to inspect hospitals, and there are many testimonies to the good work he accomplished in the short period he was able to hold his post.

In recent winters he had suffered from emphysematous attacks, but a short holiday in the south had restored him. In Egypt this trouble recurred whilst he was weakened by dengue and dysentery. So he was obliged to go on sick leave to Cannes. There he failed to recover as in previous years; he reached home very weak, and died on January 31st. He was buried at Golders Green with full military honours. At the same time a service was held in the Westminster Hospital Chapel.

DR. WILLIAM BARKER BALE died at his residence in Stockport, Cheshire, on January 12th. He was a son of the late Dr. William Bale, J.P., for many years a medical officer to the Stockport Union and a member of the town council. The deceased, born in Stockport in June, 1866, was educated at Lancaster and studied medicine at the Owens College, Manchester, taking the diplomas of M.R.C.S. and L.R.C.P. in 1890. He was appointed medical officer for the Stockport Workhouse, an appointment he held for nearly twenty-five years; he was also medical officer for the cottage homes attached to the union, and public vaccinator. When Stepping Hill Hospital was built and, later on, when a sanatorium and new nurses' homes were erected, he was given the sole management of the medical and surgical arrangements. He gave evidence before the Royal Commission on the Poor Law. Two years ago he rested from his official labours for some months; on resuming them, once more he worked hard, and had charge, since May, 1915, of the military patients. His professional reputation had gained for him a large private practice. In December he was forced to take six months' leave of absence, but he was too ill to quit his home, and sank rapidly. His widow, a son, and two daughters survive him. Every section of the community attended the funeral at Stockport Borough Hospital Cemetery in order to show their sincere sympathy and to pay their last tribute of respect to the deceased doctor, who was held in universal esteem and affection in Stockport and neighbourhood.

IN the course of a lecture at the London School of Economics last week, Sir George Paish stated that it was the intention this year to maintain in the field, in place of an average of two millions last year, a force of four millions at a total cost of eighteen hundred or two thousand millions sterling.

Universities and Colleges.

LATIN IN THE MEDICAL CURRICULUM.

THE Court of Governors of the University of Sheffield on February 7th amended the statutes so as to provide that "students shall be entitled as from June 1st, 1915, until the Court of Governors of the Sheffield University shall otherwise determine, to enter the Faculty of Medicine of such University without being compelled to take Latin at the matriculation examination."

The University of Birmingham has also decided that Latin shall be an optional subject, students in future being permitted to offer a modern language or a science instead of Latin.

The step was taken by the University of London in 1902.

With reference to the University of Manchester we have received the following letter:

The University, Manchester,
February 8th, 1916.

Sir,—In the report of the Committee of Management to the Conjoint Examining Board of the Royal Colleges, as well as in the report of the comitia of the Royal College of Physicians, it has been stated that Latin is no longer a compulsory subject in the entrance examination to the Faculty of Medicine in the University of Manchester.

I should be glad if you would allow me to correct this misunderstanding. The University of Manchester has not modified the matriculation requirements.

I am, etc.,
G. ELLIOT SMITH,
Dean of the Faculty of Medicine.

UNIVERSITY OF SHEFFIELD.

DR. ARTHUR J. HALL, F.R.C.P., Senior Physician, Sheffield Royal Hospital, has been appointed to the Professorship of Medicine, in succession to Dr. Duncan Burgess.

THE FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

WAR SERVICE OF MEDICAL PRACTITIONERS.

THE Registrar informs us that the Royal Faculty of Physicians and Surgeons of Glasgow have been much gratified to observe the large number of those connected with the medical profession who are giving war service in various capacities. They desired to take some step which would at once mark their sense of the loyalty of these members of the medical profession and would encourage others to follow their example. With that twofold object, and after careful consideration as to the best method in which this could be attained, they have made an alteration in their Regulations for the Examination to the Fellowship of the Royal Faculty, which they consider will mark their sense of the value of war service, and will facilitate the entry of those who render adequate war service into the Fellowship without unduly lowering the standard of the qualification. The Fellowship of the Royal Faculty is an honours qualification, and is of deservedly high repute. It is open to registered medical practitioners of not less than two years' standing who pass an advanced examination in two of the principal subjects of medical science. The Royal Faculty, having in view the value of the loyal and patriotic services which those who are engaged in the war are giving to the State, and the value of the experience they are likely in this way to acquire, have resolved that in their case an examination in one of these subjects in place of two shall be accepted as sufficient, and that this privilege shall hold good in the case of candidates coming forward within five years after the termination of the war.

CONJOINT BOARD IN ENGLAND.

THE following candidates have been approved at the examination indicated:

FINAL EXAMINATION.—*Part I. Medicine:* F. M. Allchin, G. F. V. Anson, T. A. P. Benbow, A. W. C. Bennett, K. H. Bhat, J. T. Bleasdell, C. E. Bond, C. V. Braimbridge, I. F. Buckle, G. E. Chissell, H. M. Church, P. S. Clarke, D. Crellin, R. G. Dani, A. R. K. Dina, G. G Drummond, W. C. C. Easton, W. F. Eberli, M. Elias, C A. L. Evans, G. I. Evans, S. W. Fisk, A. R Fuller, C H. Gilmour, C. C. Goodall, E. A. Green, H. E. Griffiths, A. B. Gunasekara, T. H. Gunewardene, H. M. Halliday, J. C. N. Harris, W. L. A Harrison, B. Haskins, E H. V. Hensley, E. L. Hopkins, W A. Hotson, H. Ingleby, G. G. Jack, T. H. Jackson, F. B. Jago, L W. Jones, V. Kameneff, T. L. Kan, I. Keess, C. E. Kindersley, R. P. Lankford-Jones, M. E. A Latif, H. Lewie, L. M. Lister, D. Loughlin, H. M. C. Macaulay, P. G. M'Evedy, G. A. S. Madgwick, R. H Maingot, L. A. Malik, P. S. Marshall, G L. Maule, F. W. Maunsell, A. D. Millington, T. D. Morgan, A. G. Morris, B. Mountain, S. Muttiah, K. V. Muttukumaru, N. R. Nalliah, J. D. Oliver, M. Olivera, A J. Orenstein, P. E. D Pank, E W. Paul, G. Perkins, P. R. O'R Phillips, R. R. Powell, D. S Pracy, M. K. Robertson, G C. Robinson, B. T. Rose, P. G Russell, K. Sahib, E. Sakoschansky, W. H. Sarra, J. E Scanlan, G B. Sellwood, E. A. Shaw, C. Shaw-Crisp, N. A. Sprott, E. Stansfeld, W. Steadman, H. G. Stormer, A. Sunderland, H. W. Taylor, L. D. Taylor, W. H. Thomas, J. A. Tippet. H. M. von Mengershausen, H J. Wallace, L. Walton, H. A. Whyte-Venables, R. W. Willenberg, G. C. Williams, H. G. E. Williams, A. Wilson, T. Wilson, L. Zeitline.

Part II. Surgery: A. W. Adams, M. N. Andrews, G. F. V. Anson, K. D. Atteridge, A. J Bado, K. L. Bates, T. A. P. Benbow, G. A. Beyers, K. H. Bhat, J. T. Bleasdell, E. S. Bowes, A. O. Courtice, P. A. Dargan, L. M Davies, L Ap I. Davies, H. M. Drake, A. N. Drury, C. Y Eccles, C A. L. Evans, D. J. Evans, L. W. Evans, M D Evans, W. J. Evans, W Farquharson, G. Fehrsen, E. A. Fiddian, M. R. V. Ford, C. Gould, H. E. Griffiths, C. G W. Hahr, A. E. Hamlin, G. C. Hartley, A. N. Haworth, G. E. Heath, V. R. Hirsch, E L Hopkins, G. P. B. Huddy, H. Ingleby, V. C James, A. R. Jennings, S. H. M. Johns, W. G. Johnston, J G Jones, L W. Jones, C. E. Kindersley, E A Leviseur, H. Lewis, K. T. Limbery, G. A. S. Madgwick, R. H. Maingot, G. M. Miall-Smith, R. D. Moyle, K. V. Muttukumaru, H. M. Oddy, P. R. O'R. Phillips, A. C. Pickett, D. S Pracy, R. Rau-Damodar, D. Ree-, E. D. Richardson, M. K. Robertson, B. T. Rose, E. E. Samaraweera, J. T. Samuel, E. H Schwab, C. P Sells, G. B. Sellwood, E. Stansfeld, G. T Symons, H. J. H. Symons, A. H. Taymour, W. H. Thomas, J. A. Tippett, R. S Topham, H. M. von Mengershausen, P. E. Webb, H. M Wharry, H. A. Whyte-Venables, H. G. E. Williams, A. Wilson, R. S. Woods, G. N. Younger.

Part III. Midwifery: G. C. Agarwala, A. M. Ahmad, J. Andrew, G. F. V. Anson, H. Archer, A. Arias, T. B Bailey, T. A. P. Benbow, F. E. Bendix, H. J. Bensted, C. E. Bond, E. G. P. Bousfield, I. R. R. Brogden, W. W. K. Brown, H. S. Bryan, L. J. F. Bull, H. R Buttery, H. H. Castle, L. A. Celestin, A. H. Clarke, P. S. Clarke, A. A. Cockayne, W. H Coldwell, J. D. Constantin, G. F. Cooke, M C. Cooper, L. Cunningham, R C. Davenport, A. V. S. Davies, F. G. L. Dawson, M. A. B. Demerdash, A. B. Dummere, W. H. Dye, J. D. Dyson, A W. F. Edmonds, H. E. Ekanayake, M. Elias, H. S. Evans, T. S. Evans, F. O. Fehrsen, E. A. Fiddian, M. R. V. Ford, M. E. Franklin, A. R. Fuller, D. H. A. Galbraith, G. T. Garraway, L. S. Gathergood, E. L. Glasier, H. E. Griffiths, E. Haigh, N. H. Harrison, B Haskins, A. N. Haworth, J. A. Hill, G Hoffmeister, W. O. Holst, W. A. Hotson, J. B. Hume, H. Ingleby, E. E. Jenkins, T. Joekes, P. T. Jones, W. H. Jones, H. Lewis, N. M. Lewis, E. E. Lightwood, A Lloyd, D. Loughlin, L. G. Lunnon, H. M. C Macaulay, L. A. Malik, W. Marriott, P. S. Marshall, J. A. Martin, F. C Mason, A. M. Matland, B. H. Mellon, G M. Miall-Smith, H. W. L. Molesworth, E. C. de M. Morgan, R. Moser, E. W. Mottau, G. Moulson, D. M. Muir, J J. Murphy, F. P. Nicholas, D. C. Norris, M A. Omar, A. O'Reilly, J. A. P. Perera, E. M. Pfeil, V. Philippe, E. S. Phillips, R. L. Portway, J. S. Ranson, C. Y Roberts, M. K. Robertson, J. D. Rutherford, R. J Scarr, G. B. Sellwood, R. G. Simpson, D. M. Smith E Stansfeld, G. P. Tatton, W. H. Thomas, R. O. Townend, H. M. von Mengershausen, O. Williams, A. G. P. Wills, A. Wilson, J. H. Wiseman, C. Young.

The Services.

EXCHANGE DESIRED.

CAPTAIN, R.A.M.C.(T.), home on special leave, due to return as M.O. to a regiment in France on March 1st, desires, owing to family reasons, to exchange with medical officer in hospital or administrative work in England. Address, No. 650, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

THE King has appointed Mr. Harold Low, M.A., M.B., to be anaesthetist to His Majesty's household.

DR. AYLMER MAY, who was P.M.O. to the forces operating in Northern Rhodesia, is coming home to act as assistant to Colonel Sir Almroth Wright in France.

A QUARTERLY meeting of the Medico-Psychological Association will be held at 11, Chandos Street, W., on Thursday next at 2.45 p.m., when Dr. George M. Robertson, physician-superintendent of the Royal Edinburgh Asylum, Morningside, will read a paper on the employment of female nurses in the male wards of mental hospitals.

THE foundation stone of the Hospital for Tropical Diseases of the Calcutta School of Tropical Medicine will be laid by the Governor of Bengal, Lord Carmichael, on February 24th. The preliminary work of the building has already been begun. The whole of the money for the building has now been collected by Sir Leonard Rogers, Professor of Pathology in the University of Calcutta. The Calcutta School of Tropical Medicine was described and illustrated in the BRITISH MEDICAL JOURNAL of March 7th, 1914, pp. 562–63.

THE Home Secretary has appointed a committee to consider and report whether, having regard to the normal conditions of traffic in London, licences to drive motor cars, motor omnibuses, or tramway cars should be granted to men who suffer from some partial disablement by loss of a limb or other similar cause, and, if so, within what limitation. The chairman of the committee is the Assistant Commissioner of Police, and among the other members are Sir Frederic Eve, the secretary of the Soldiers' and Sailors' Help Society, the secretary of the Royal Automobile Club, a representative of the Local Government Board, and the managing director of the London General Omnibus Company.

A MEMORIAL tablet in memory of the late Dr. B. C. Antill Pockley, who was killed while on active service with the first Australian Military Expedition at Kaba Kaul, New Britain, on September 11th, 1914, was unveiled at the Sydney Hospital on December 22nd, 1915. The inscription on the tablet recalled the circumstances of Captain Pockley's death, as recorded in the BRITISH MEDICAL JOURNAL of January 2nd, 1915, p. 46, in the following words: "He died through giving to a wounded comrade the badge protecting his own life." Dr. Ralph Worrall, the senior gynaecologist to the hospital, by whom the ceremony was performed, paid a high tribute to Captain Pockley's attainments and character, and, in concluding his remarks, associated with the tribute thus paid to a noble young man, the names of three other medical men—Dr. Muir Smith, Dr. Eric Giblin and Dr. Arthur Verge—who had also given their lives to their country.

IN his presidential address to the Society of Public Analysts, on February 2nd, Mr. A. Chaston Chaplin said that during practically the whole of the first year of the war skilled chemists were recruited for active military service; that was to say, men who, by their training and experience, were absolutely necessary in their civil occupations for the welfare of the country, whether in war or in peace, were accepted for ordinary military work. Many hundreds of highly trained chemists were to a great extent wasted by being put to military duties which could easily have been performed by men with no special training. Eventually the Board of Trade appreciated the facts of the situation, and in issuing its list of reserved occupations of cardinal importance for the maintenance of some other branches of trade and industry, mentioned analytical and consulting research chemists, who, it was directed, should not be accepted for immediate enlistment or called up for service with the colours without the consent of the Royal Society. Mr. Chaplin added that the president of the Royal Society has now appointed a committee to assist the society in connexion with matters relating to recruiting.

THE General Secretary of the Medical Defence Union informs us that Sir Henry Craik, M.P., has received a communication from the Financial Secretary to the Treasury with reference to the assessability of gratuities and bonuses granted to temporary lieutenants of the Royal Army Medical Corps. In general these sums are said to be given under the officer's contract for satisfactory service, and as such are liable to income tax. The remainder of the answer quotes the various sections bearing on the allowances due in certain cases, but as we have dealt with these sections in previous issues (as, for instance, in that of October 30th, 1915), it will suffice to say that Mr. Montagu points out that an officer in the R.A.M.C. will come under the relief provisions of Sections 25 (1) of the Finance (No. 2) Act, 1915, if his total income does not exceed £300, and that, under Section 13 (1) of the Finance Act, 1914 (Session 2) and Section 20 of the Finance Act, 1915, he will only bear tax in respect of the practice he has given up on the basis of the actual profits (if any) of the year, instead of on the average of the past three years.

IT is satisfactory to find that the Brentford guardians have appointed a committee to consider a scheme for the supply of medicines to their sick poor. This reform, urged over and over again upon guardians by the Local Government Board, has been adopted in many parts of the country. In the metropolitan area the supply of drugs by the guardians has been compulsory for many years, and the provisions of the Metropolitan Dispensaries Order ought to have been extended to other parts of the country. It is a pity that the guardian who made the proposal at Brentford could not have done so without in a most reckless manner bringing charges against certain medical practitioners, whose names were not mentioned, but who might be supposed by the context to be some of the board's own medical officers. According to a report in the *Acton Gazette*, he said that he had seen in doctors' surgeries large bottles labelled A.D.T., which he explained to mean "any d——d thing." Now, Mr. Greville-Smith has either seen this label in the surgery of a Poor Law medical officer at Brentwood or he has not. If he has, he ought to have brought his allegation before the board, so that an inquiry could have been held which would either have established its truth or have shown that Mr. Greville-Smith's eyes had deceived him. As a matter of fact, we suspect that the latter alternative would have been proved to be correct. The story about A.D.T. was a chestnut early in the last century. We have never seen the label, and have never heard of any one except Mr. Greville-Smith who has.

Letters, Notes, and Answers.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

LETTERS, NOTES, ETC.

THE ANGULUS LUDOVICI.

J. C. (Edinburgh) writes: As a onetime demonstrator of anatomy I was interested in your reviewer's criticism of Professor Davis's *Applied Anatomy* (BRITISH MEDICAL JOURNAL, February 5th, 1916). While the angle is called after Louis, this last is the French form of the Frankish "Chlodewig," (Ludwig) and Ludovicus is the Latin for both forms. What is wanted in students' anatomy books is a line or two on the biography of the men whose names are embedded in anatomy, and it would be of great interest to the student to know that Sylvius was plain Jacques du Bois, and Vesalius, Wessels, and so on with others. Now that Latin is being done away with, as at Liverpool Medical School, we may expect considerably more confusion.

INCOMPATIBILITY.

DR. JOHN RITCHIE (Glasgow) writes, with reference to the note on this subject in the JOURNAL of February 5th (p. 224), as follows: If "M." will mix his ingredients as described below, and allow the mixture to stand aside for an hour or two, he will secure a fine clear solution. Dissolve the sod. salicyl. in part of the water. Dissolve the pot. bicarb. in part of the water. Dilute the tinct. ferri perchlor. with the remainder. Mix the sol. sod. salicyl. with the sol. pot. bicarb. Add the mixed solutions to the diluted tinct. ferri perchlor.

M.P.S. (Glasgow) states that he has dispensed the mixture in question many times, and has found it compatible if prepared in the following manner: To a solution of the sodium salicylate in half the aq. chlorof. placed in a large measure add gradually the tinct. ferri perchlor. mixed with the remainder of the chloroform water, stirring constantly till effervescence ceases. The result is a blood-red mixture, perfectly clear and stable.

MR. THOMAS STEPHENSON of Edinburgh calls attention to a note of a similar prescription given in his pamphlet *Incompatibility in Prescriptions*. He directs that the salicylate and the potash should each be dissolved in water; the former is put into the bottle and the ferric chloride added to it, then the potash solution, and the bottle is filled up with water. The result is, he says, a clear claret-coloured mixture without a trace of deposit or effervescence.

CHILBLAINS.

DR. J. FLYNN (Sydney, N.S.W.) writes with reference to recent inquiries as to the treatment of chilblains: I would recommend a trial of extract of suprarenal gland. It is true that one swallow does not make a summer, but the marked effect that followed the administration of gr. v thrice a day in a case under my personal observation that had for years tried calcium in various forms caused me to ask the question whether other factors than deficiency of lime in the blood do not enter into the causation of chilblains. It would be well to consider whether inadequacy on the part of the suprarenal system and its effect on the autonomous sympathetic does not play a part in this very troublesome malady.

SCALE OF CHARGES FOR ADVERTISEMENTS IN TH BRITISH MEDICAL JOURNAL.

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Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
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An average line contains six words.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.